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SIMULATION TEST REPORT FOR INTERNAL MOBILITY AIDS
EVALUATION

By Space Simulation and Experiments Office
Manufacturing Engineering Laboratory

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SPACE SIMULATION AND EXPERIMENTS OFFICE
SIMULATION ENGINEERING SECTION

ABSTRACT

This document presents the methods and procedures used in evaluation of four (4) MDA internal mobility aid concepts. Testing was conducted under contract by Hayes International Corporation in the 25-foot diameter neutral buoyancy tank.

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SIMULATION TEST REPORT FOR INTERNAL MOBILITY AIDS EVALUATION

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SPACE SIMULATION AND EXPERIMENTS OFFICE
SIMULATION ENGINEERING SECTION

MANUFACTURING ENGINEERING LABORATORY
RESEARCH AND DEVELOPMENT OPERATIONS

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SIMULATION ENGINEERING SECTION

SUMMARY

Evaluation testing of four different internal mobility aid concepts under consideration for use in the Multiple Docking Adapter (MDA) has been conducted in the Neutral Buoyancy Facility. The concepts of hardware used were as follows:

1. Snap-on foot restraint.
2. Adjustable longitudinal handrails; longeron based handholds; longeron extension handholds; flat plate longeron; longeron handrail.
3. Tubular ring and radial handrails; adjustable handrails; adjustable handrail poles.
4. Moveable Ring Foot-Restraint (MRFR); fixed vertical handrails.

Two test subjects performed various translation and package transfer tasks using each set of mobility aid hardware. Both test subjects preferred concepts 1 and 2 to concepts 3 and 4. One subject chose concept 1 as best and the other chose concept 2; however, both agreed that there was not a great deal of difference in the total usefulness of the two concepts. Both subjects stated that the concept 3 hardware was not very effective in aiding mobility and stability, and parts of it often hampered movements. The moveable ring foot restraint (MRFR) of concept 4 was not considered to be practical by either test subject, but the defective hardware made an objective evaluation of the concept usefulness impossible.

The time data sheets included in this report show times required to perform each task during each concept test. These times should not, however, be used as a sole measure of the usefulness of a given concept in performing a particular task, since variations in times were more often due to the relative difficulty of removing and installing the package retaining pippins than to differences in the difficulty of translating and stabilizing with the mobility aids.

INTRODUCTION

This test was designed to evaluate the relative merits of four different internal mobility and stability aid concepts under consideration for use in the Multiple Docking Adapter (MDA). The objective of the test was to determine which of the four concepts is best suited, overall, in aiding an astronaut to: (1) translate from any docking port to the structural transition section control panel and windows; (2) stabilize and perform experiments at forward and aft windows; (3) transfer boxes of various sizes from one location in the MDA to another; and (4) translate from any point in the MDA to any other point. Evaluations were made for both shirtsleeve and vented pressure suit operations.

Testing was conducted in the 25-foot Neutral Buoyancy Facility of the Manufacturing Engineering Laboratory.

SIMULATION HARDWARE

An MDA Neutral Buoyancy Mockup with supporting stands was placed in a horizontal position in the 25-foot neutral buoyancy tank. The mockup was oriented so that docking port number IV was turned toward the floor of the tank. The umbilical line was threaded through the axial docking port for use during vented suit runs.

The following apparatus constituted the independent variables to be evaluated in this experiment:

1. Four independent mobility/stability/transfer aid concepts:

- a. Snap-on foot restraint (See Figure 1).
- b. Adjustable longitudinal handrails; longeron based handholds; longeron extension handholds; flat plate longeron; and longeron handrails (See Figures 2a and 2b).
- c. Tubular ring and radial handrails; adjustable handrails; and adjustable handrail poles (See Figure 3).
- d. Moveable Ring Foot-Restraint (MRFR); and fixed vertical handrails (See Figure 4).

2. Several additional proposed mobility/stability/transfer aid concepts were in position along with each of the four preceding

independent concepts. These concepts were analyzed as independent variables within each independent concept and functioned as control constants between the independent concepts. They are as follows:

- a. Scientific Airlock (SAL) handrails.
- b. Forward Window Handholds.
- c. Forward Window Handrails.
- d. Docking port handrails.
- e. Fireman's pole.
- f. Structural Transition Section (STS) control panel platform.
- g. Recessed handholds in docking ports.

The package arrangement in the MDA is shown in Figure 5.

SIMULATION TECHNIQUE

The simulation was divided into four basic sections, one for each of the mobility/stability concept designs. Each of these sections was subdivided into shirtsleeve operations and vented pressure suit operation (VPS). For each concept shirtsleeve trials were completed before the VPS operations were begun. The concepts were tested in the following order: Concept No. 1; Concept No. 4; Concept No. 2; and Concept No. 3.

Before running the test trials for a given concept, the subject and support personnel participated in a sufficient number of familiarization trials until no significant variations in time or testing were noted. At least one familiarization trial was run before and on the same day as experimental trials.

Time between trials was held relatively constant and sufficient time was allowed for the test subjects and support personnel to rest. The subjects alternated trials, with the second subject being tested immediately after the first subject left the water, until all trials for a particular day were complete.

The detailed element procedure for each concept as used is shown in Appendix A. Photographs of the various sequences in testing for each concept are shown in Appendix B.

DATA GATHERING

1. Total task times and individual detailed element times were recorded for each trial. Start signals given by the test conductor and finish signals given by the test subject were executed for each detailed element during each trial.
2. Errors in task performance were recorded.
3. Debriefings of subjects and observers along with the completion of Cooper Rating Scales were performed upon the completion of each concept.
4. The test engineer monitored the test viewing a closed circuit television with the camera located underwater.
5. Electronic communications were maintained between the test engineer, test subject, and support personnel.
6. Motion and still photographic coverage of selected tasks was provided for detailed analysis.

A presentation of the timed data recordings is given in Appendix C.

DATA ANALYSIS

The relative merits and faults of each of the four concepts, based on test subjects' opinions, observations made by the test conductor, and time data obtained are summarized below:

Concept #1 - This concept was chosen by test subject No. 2 as the best of the four tested. He stated that the Snap-on Foot Restraint (SOFR) is small and compact, and may be easily positioned almost anywhere in the Multiple Docking Adapter. Test subject No. 1 chose this concept as second best but stated that he might have chosen it as best of the four if the hardware design problems were eliminated. The major hardware problem was misalignment of the holes provided for the pippins used to hold the SOFR in place. Either the packages or the mockup, or both, warped and caused this misalignment.

Concept #2 - Test subject No. 1 chose this concept as best of the

four, but both subjects stated that the adjustable handrails served no useful purpose and often got in the way during package transfer. (The rest of the concept 2 hardware was useful in aiding stability and mobility).

Concept #3 - Neither subject liked concept 3 (both subjects rated it as least desirable of the four) because the rails extending in different directions often hampered package transfer operations and did not provide sufficient means of attaining stability.

Concept #4 - The Moveable Ring Foot Restraint (MRFR) was rated third by each subject. Both subjects complained that the ring was too bulky, did not fit their feet, was not easily adjustable, and would not move up and down the poles as it was designed to do. These problems were due in part to the poor quality of the hardware furnished for this concept.

The "fireman's pole" was used often as an aid in translating and maintaining stability, and both subjects agreed that it is very useful as an internal mobility aid.

CONCLUSIONS AND RECOMMENDATIONS

From the results of the neutral buoyancy evaluation testing of the four internal mobility aid concepts, it is concluded that a combination of concepts 1 and 2, with some modification in each, will be most useful in aiding an astronaut to translate and maintain stability. It is recommended that the Snap-on Foot Restraint (SOFR) be used as a stability aid, but that the attaching method be changed from the present pippins to some more reliable and more easily manageable type of hardware. An over-center self-locking cam mechanism such as that commonly incorporated in self-locking pliers would be an improvement over the pippins. Since both test subjects stated that the adjustable handrails used in Concept 2 were not particularly useful and often hampered movement, it is recommended that they be left out of the final hardware concept.

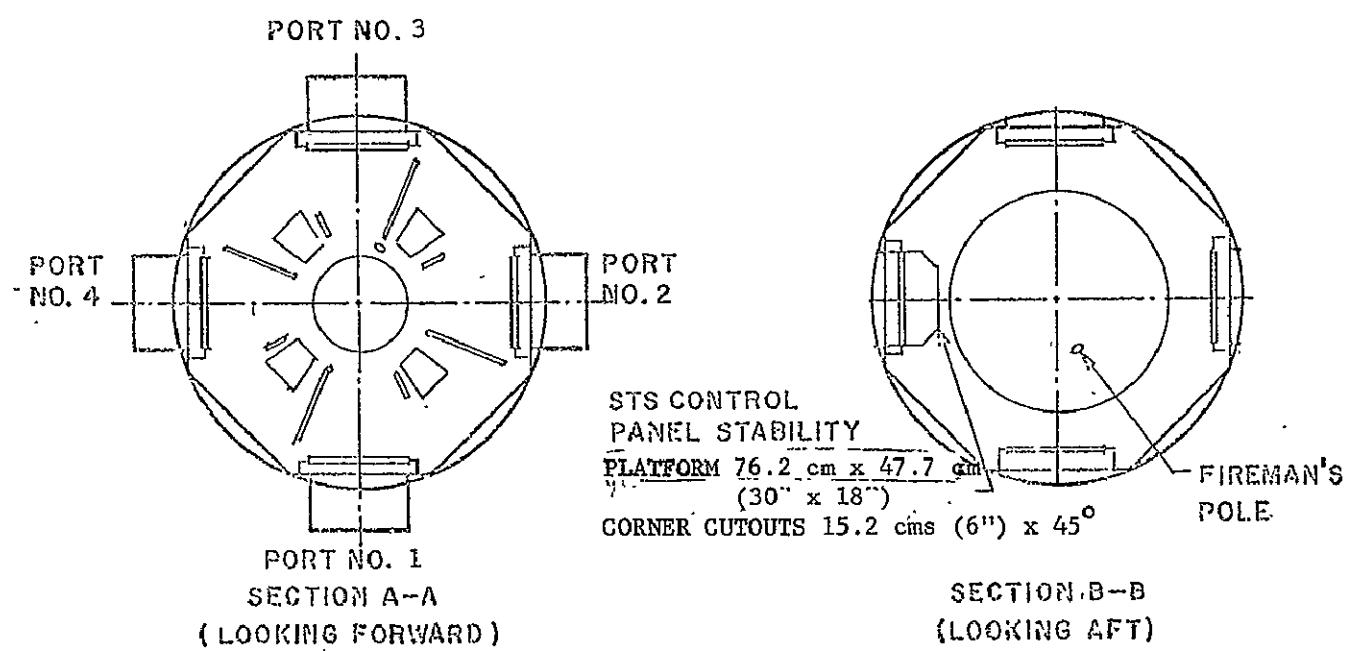
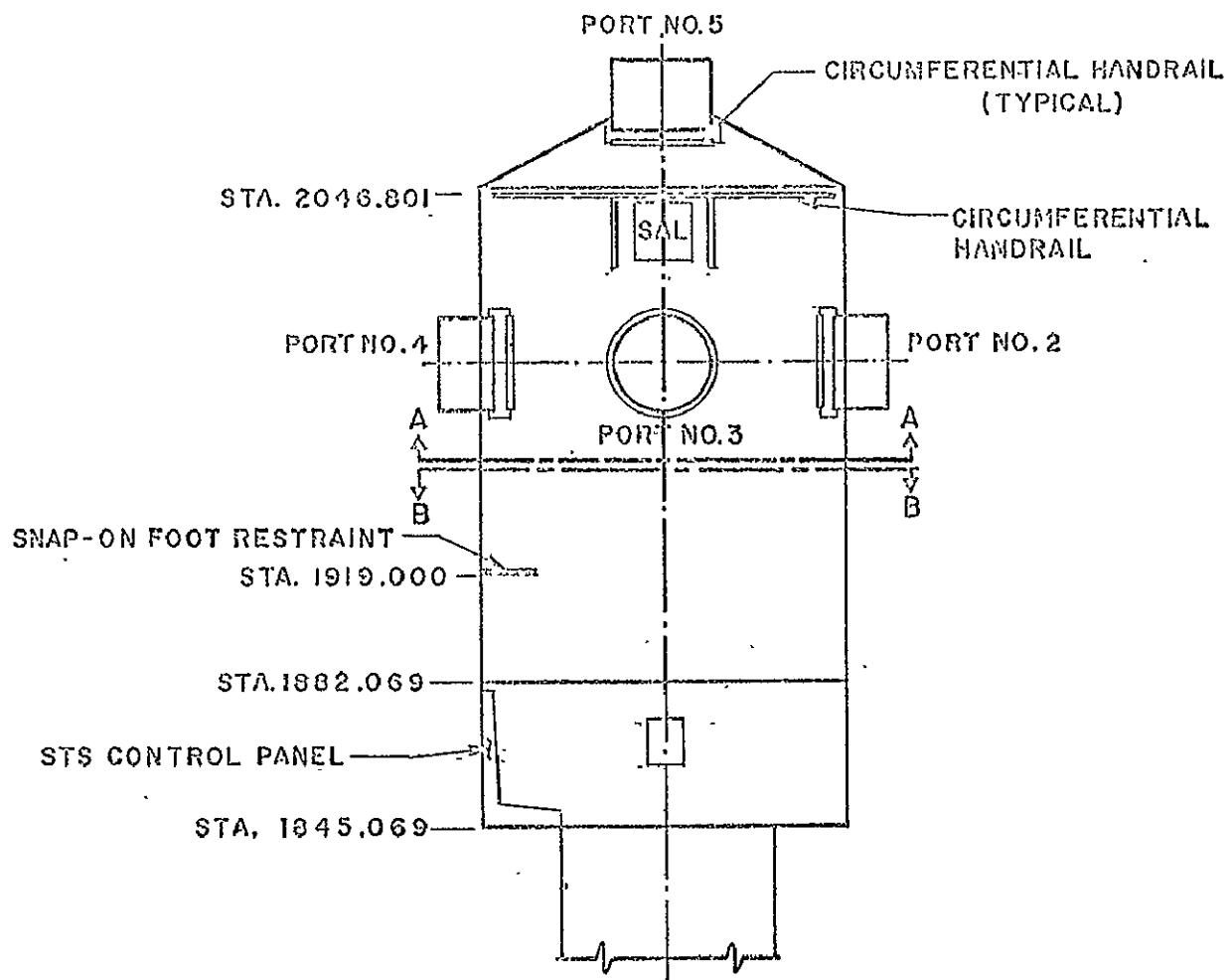
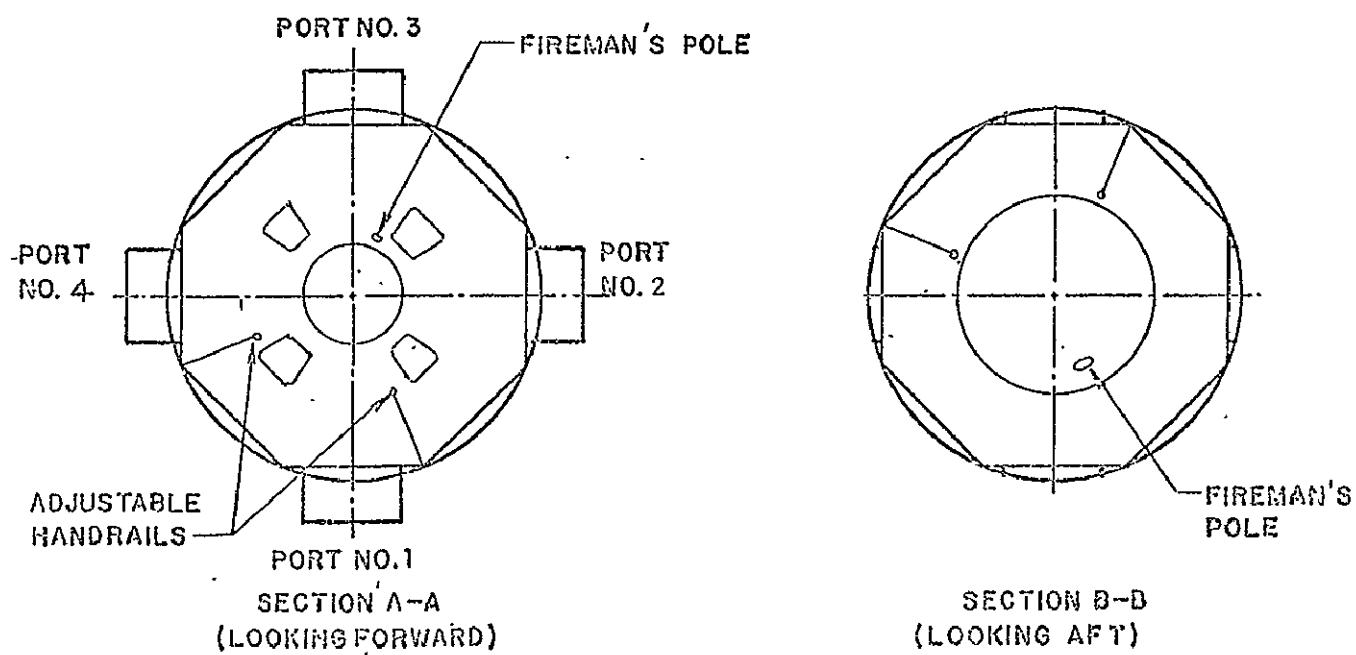
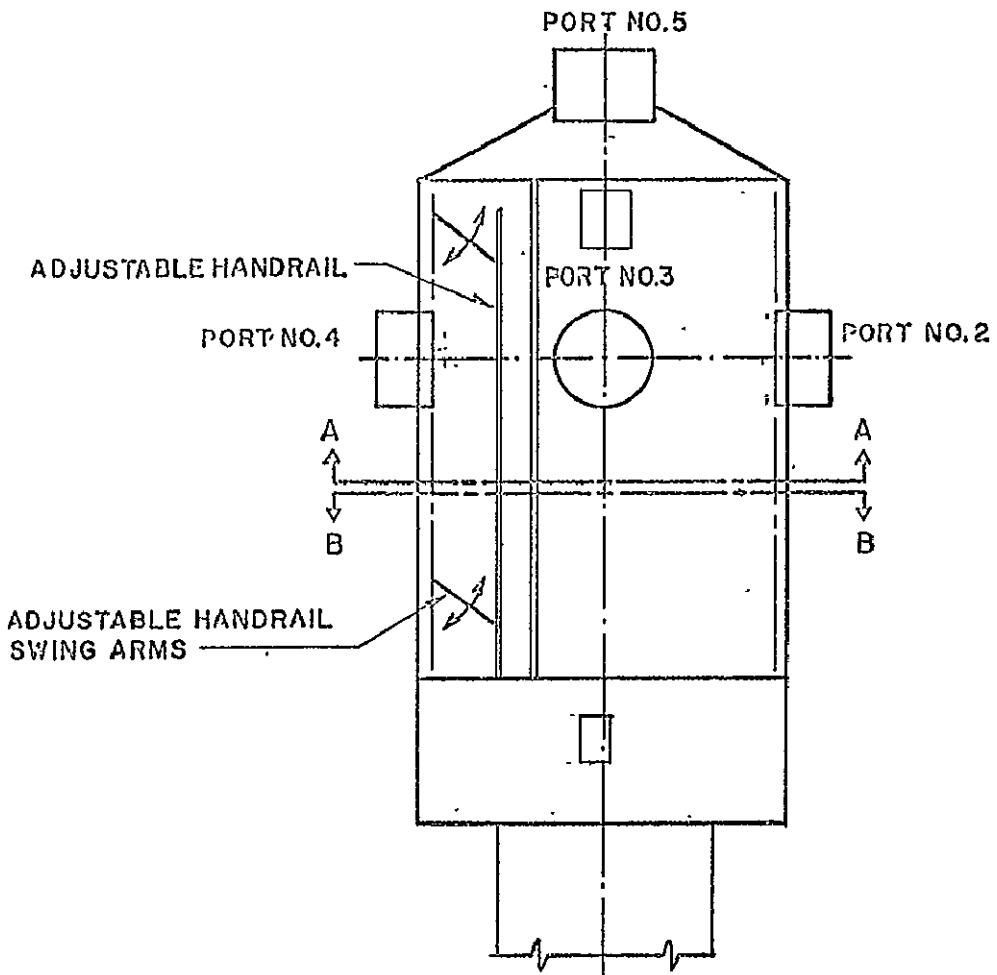


FIGURE 1. EQUIPMENT COMMON TO ALL MDA MOBILITY AID CONCEPTS



8 FIGURE 2a. VERTICAL HANDRAIL MOBILITY AID CONCEPT

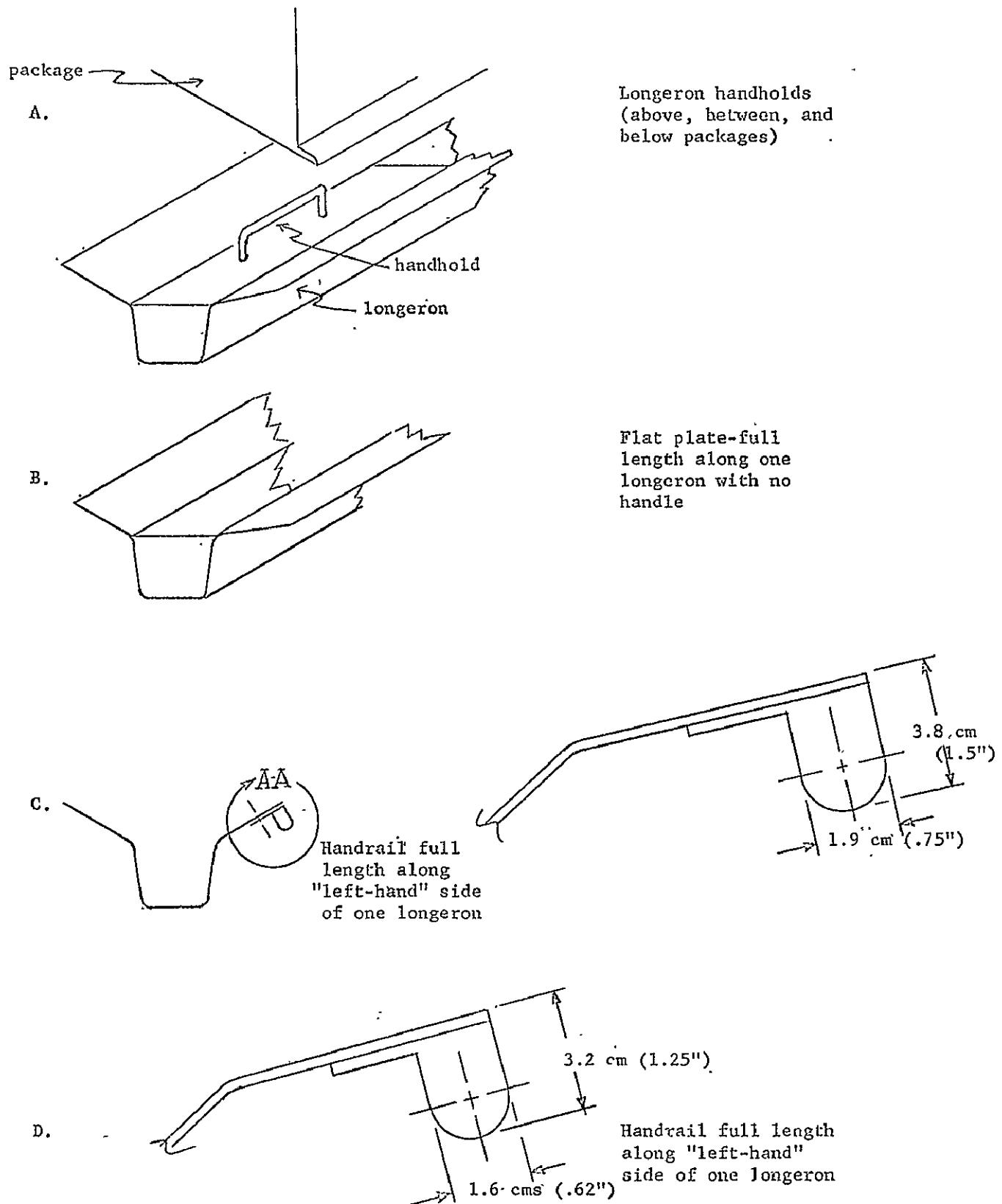


FIGURE 2b. LONGERON MOBILITY/STABILITY CONCEPTS

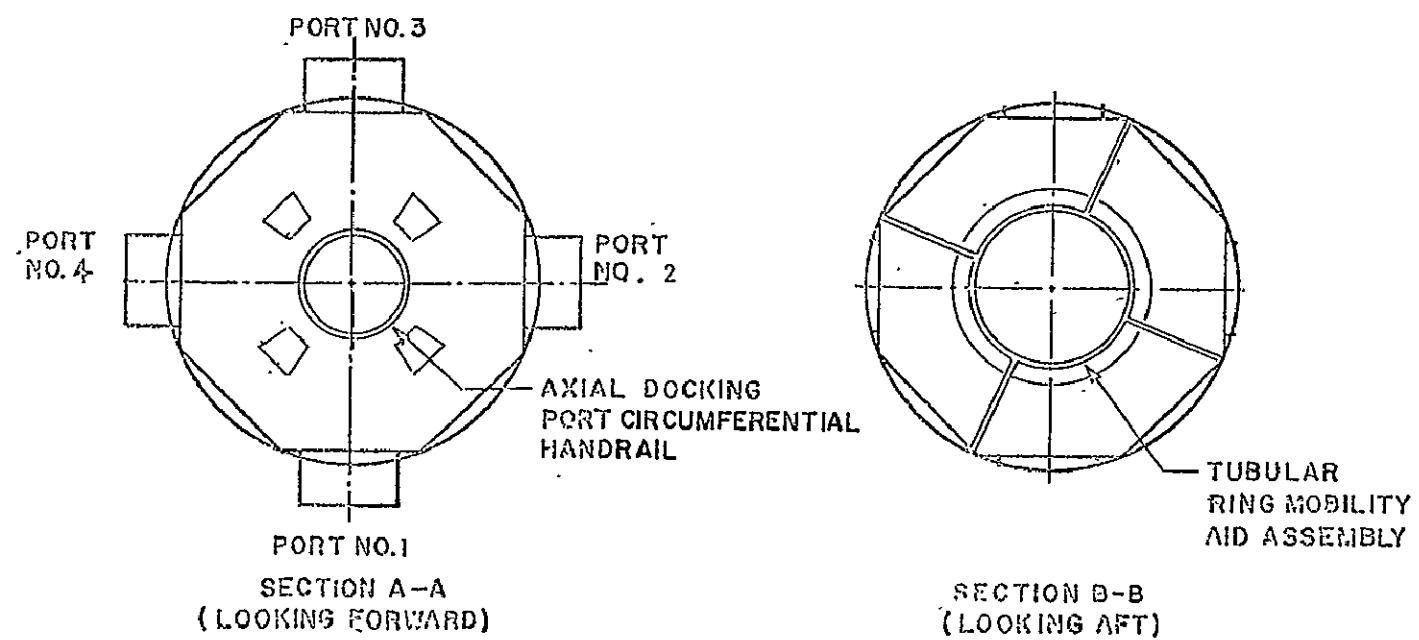
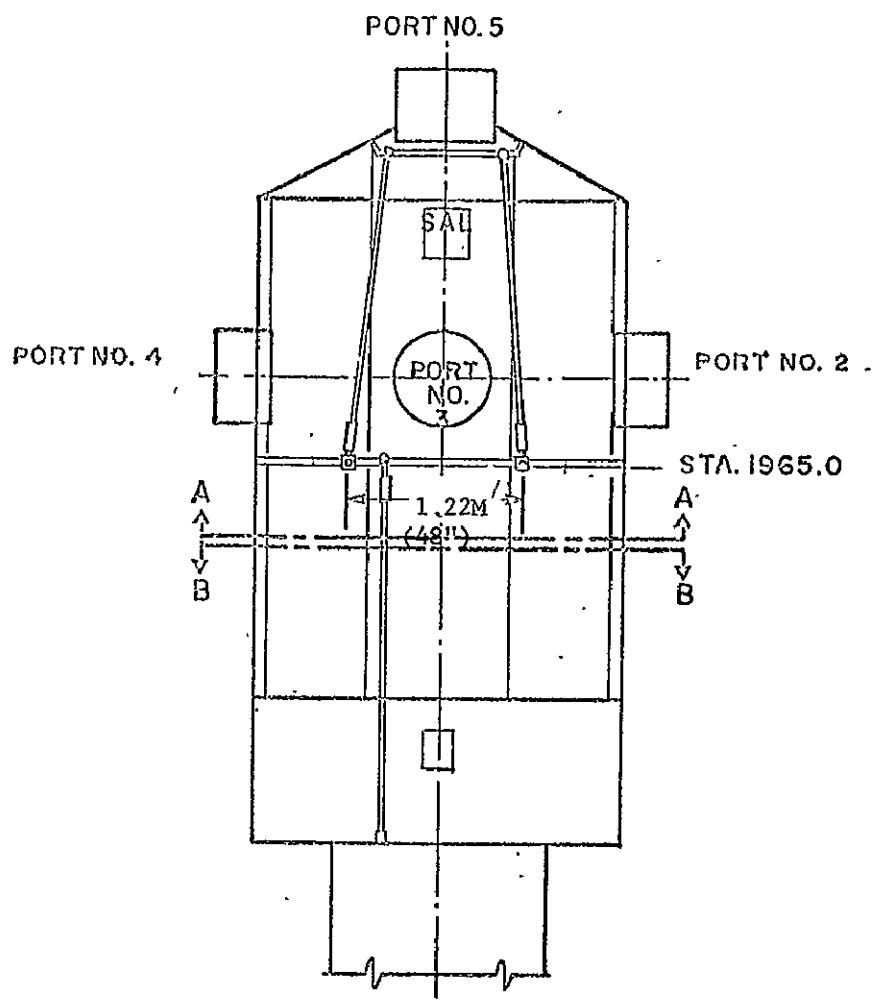


FIGURE 3. TUBULAR RING MOBILITY AID CONCEPT

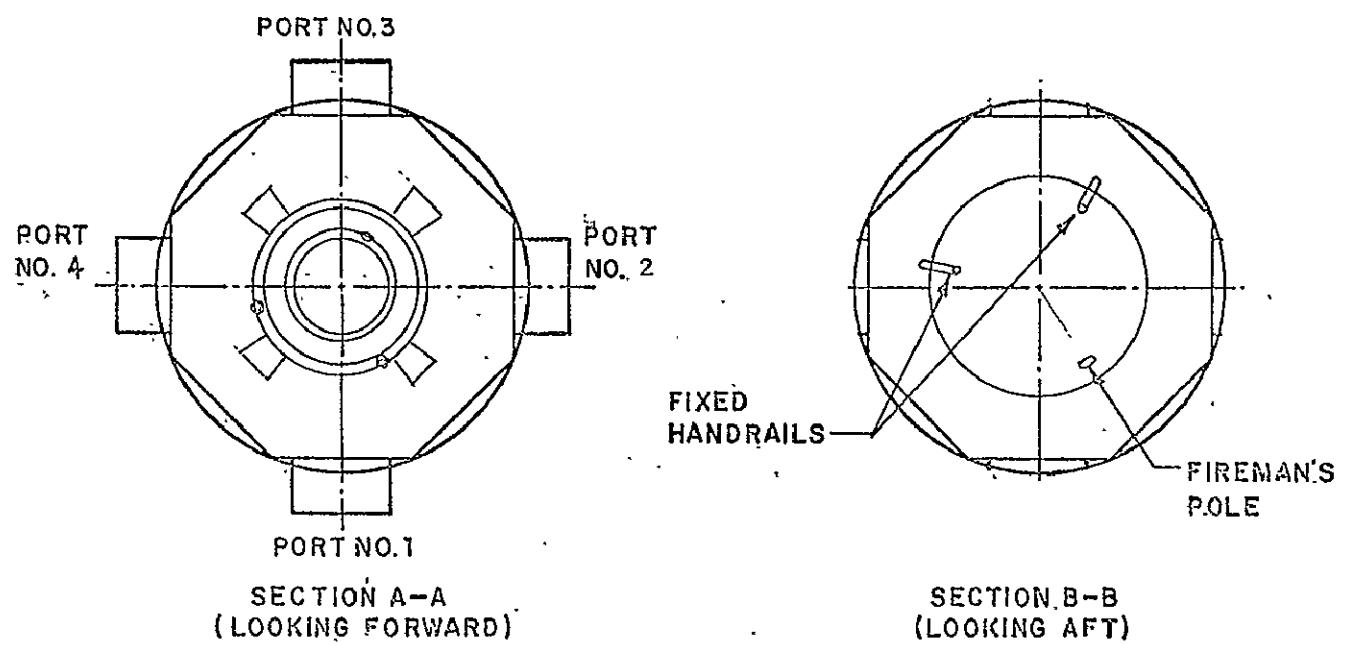
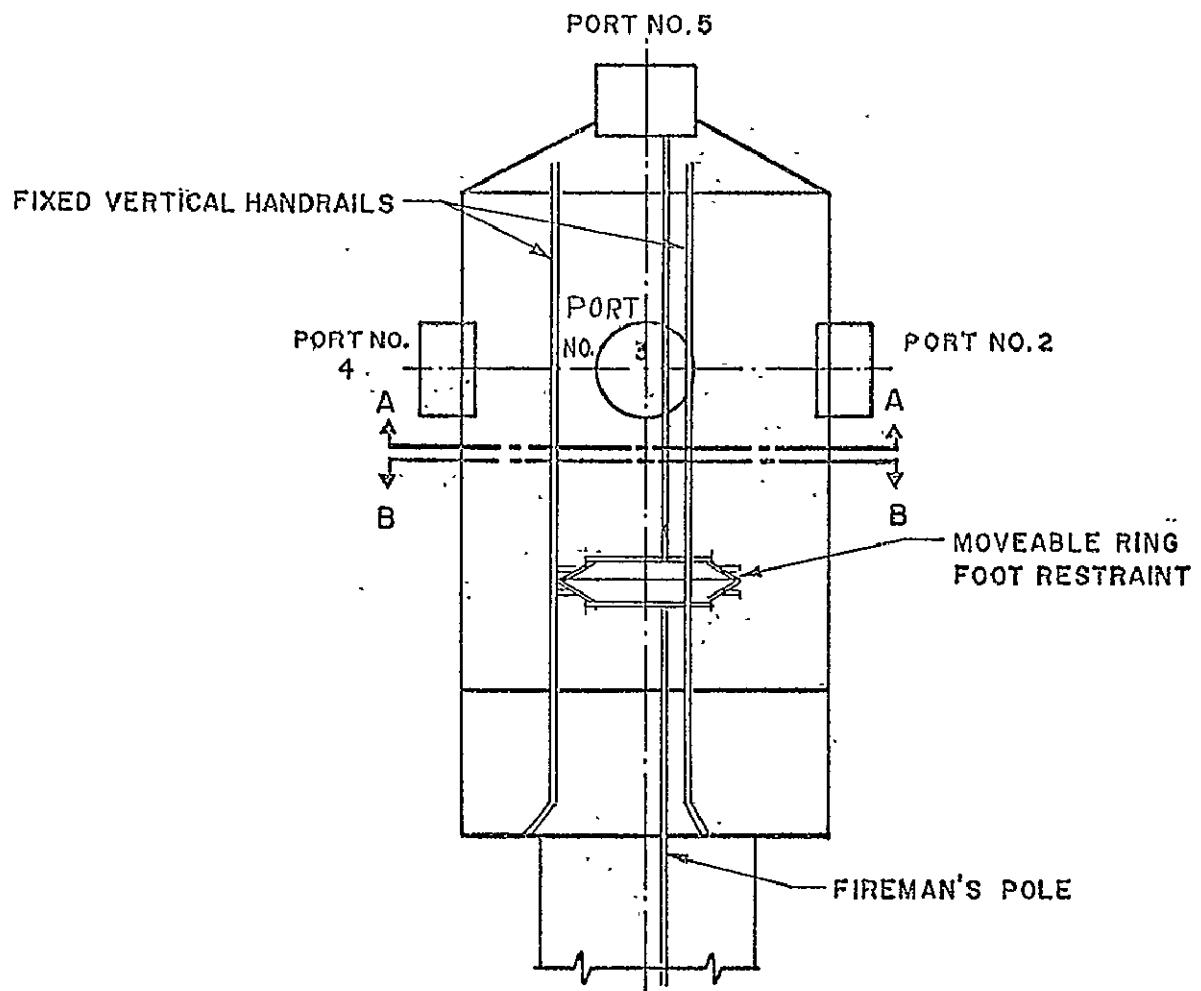
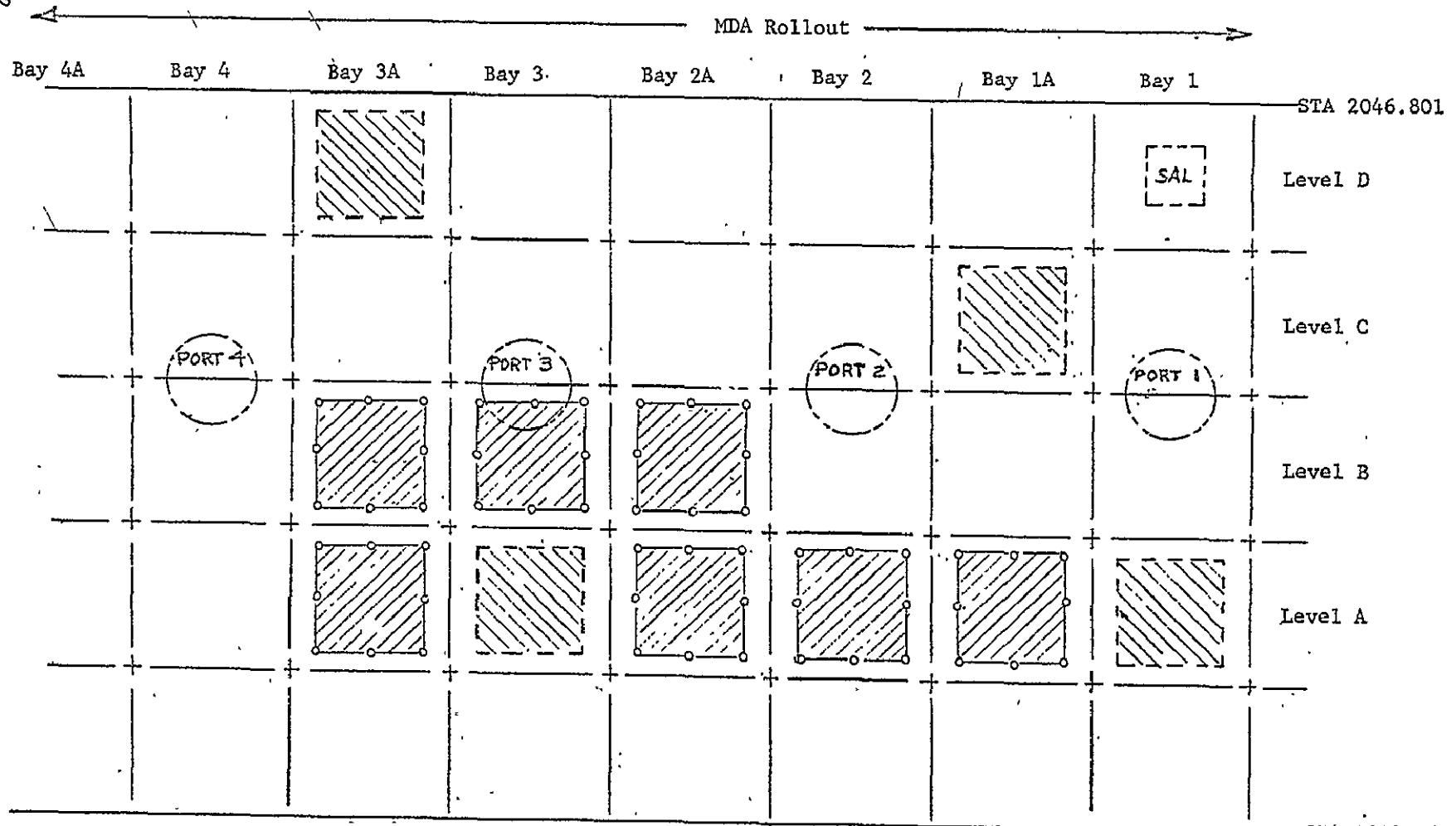
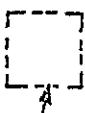


FIGURE 4. RING FOOT RESTRAINT MOBILITY AID CONCEPT



 - Quick Release Fasteners

 - Other Fasteners

FIGURE 5. MDA-NEUTRAL BUOYANCY MOCKUP PACKAGE ARRANGEMENT

APPENDIX A

DETAILED ELEMENT PROCEDURE

TEST PROCEDURE FOR CONCEPT NO. 1. - SHIRTSLEEVE

41	TASK	DETAILED ELEMENTS	NOTES
	A. . .STS Panel Operations	<ol style="list-style-type: none"> 1. Translate from port access port to STS panel; stabilize on foot restraint. 2. Perform reach envelope test. 	
	B. Reposition Snap-on Foot Restraint	<ol style="list-style-type: none"> 3. Translate to SOFR aft of STS window in bay 4A; stabilize with hands. 4. Remove foot restraint from MDA wall. 	
	C. Package Operations in Bay 1.	<ol style="list-style-type: none"> 5. Transfer SOFR to position aft of package in bay 1 - level A, stabilize. 6. Attach SOFR to MDA wall. 	
	D. Reposition SOFR	<ol style="list-style-type: none"> 7. Assume stable attitude on SOFR. 8. Remove package in bay 1, level A. 	
	E. Package Operations in Bay 1A, Level C	<ol style="list-style-type: none"> 9. Transfer package to fireman's pole (FP). 10. Remove package from FP, and transfer back to MDA wall. 11. Stabilize on SOFR. 12. Secure package to MDA wall. 	
		<ol style="list-style-type: none"> 13. Detach SOFR from MDA wall. 14. Transfer SOFR to position aft of package in bay 1A level C; stabilize. 15. Attach SOFR to MDA wall. 	
		<ol style="list-style-type: none"> 16. Assume stable attitude on SOFR. 	

TEST PROCEDURE FOR CONCEPT NO. 1 - SHIRTSLEEVE (Continued)

TASK	DETAILED ELEMENTS	NOTE
F. Reposition SOFR	17. Remove Package in Bay 1A, level C. 18. Transfer package to FP. 19. Remove package from FP, and transfer back to MDA wall, where originally removed. 20. Secure package to MDA wall.	
G. Package Operations in Bay 3A, Level D	21. Detach SOFR from MDA wall. 22. Transfer SOFR to position aft of package in bay 3A, level D; stabilize. 23. Attach SOFR to MDA wall.	
H. Reposition SOFR	24. Assume stable attitude on SOFR. 25. Remove package in level D, bay 3A. 26. Transfer package FP. 27. Transfer package back to MDA wall where detached. 28. Secure package to MDA wall.	
I. SAL Operations	29. Detach SOFR from MDA wall. 30. Transfer SOFR to position aft of SAL; stabilize. 31. Attach SOFR to MDA wall.	
J. Reposition SOFR	32. Assume stable attitude on SOFR. 33. Perform reach envelope test. 34. Detach SOFR from MDA wall.	

TEST PROCEDURE FOR CONCEPT NO. 1 - SHIRTSLEEVE (Continued)

16

TASK	DETAILED ELEMENTS	NOTE
K. T-003 Package Operations	<ol style="list-style-type: none">35. Transfer SOFR to position aft of package T-003 in bay 3, level A; stabilize.36. Attach SOFR to MDA wall.37. Assume stable attitude on SOFR.38. Remove T-003 package box.39. Transfer package to forward window above bay 1A; stabilize with one hand.40. Transfer package back to stowage package; stabilize using SOFR.41. Stow and secure package T-003.	

TEST PROCEDURE FOR CONCEPT NO. 1. - VENTED SUIT

TASK	DETAILED ELEMENTS	NOTES
A. STS Panel	<ol style="list-style-type: none"> 1. Translate from access port to STS panel; stabilize on foot restraint. 2. Perform reach envelope test. 3. Translate to SOFR aft bay 4A. 4. Translate to T-003 	
B. Reposition Snap-on Foot Restraint	<ol style="list-style-type: none"> 5. Translate to SOFR aft of STS window in bay 4A; stabilize with hands 6. Remove foot restraint from MDA wall. 7. Transfer SOFR to position aft of M-487 package in bay 1; stabilize. 8. Attach SOFR to MDA wall. 	
C. M-487 Package Operations	<ol style="list-style-type: none"> 9. Assume stable attitude on SOFR. 10. Remove package from MDA wall Bay 1, Level A. 11. Transfer package to FP. 12. Release package, and transfer to MDA wall. 13. Secure package to MDA wall. 	
D. Reposition SOFR	<ol style="list-style-type: none"> 14. Detach SOFR from MDA wall. 	
E. Reposition SOFR T-003 Removal	<ol style="list-style-type: none"> 15. Transfer SOFR to position aft of package T-003 in bay 3A, level A; stabilize. 16. Attach SOFR to MDA wall. 	
F. T-003 Package Operations	<ol style="list-style-type: none"> 17. Assume stable attitude using SOFR. 18. Remove package T-003. 	

TEST PROCEDURE FOR CONCEPT NO. 1. - VENTED SUIT (Continued)

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TASK	DETAILED ELEMENTS	NOTES
	<ol style="list-style-type: none">19. Transfer package to forward window in bay 1A; stabilize using one hand.20. Transfer package back to stowage package; stabilize using SOFR.21. Stow and secure package T-003.	

TEST PROCEDURE FOR CONCEPT NO. 2 - SHIRTSLEEVE

TASK	DETAILED ELEMENTS	NOTES
A. STS Panel Operations	1. Translate from stress port to STS control panel, stabilize on foot restraint. 2. NA (see note a).	
B. Reposition Foot Restraint	3. NA 4. NA 5. Translate to package in Bay 1, level A. 6. NA	
C. Package Operations in Bay 1	7. Assume stable attitude. 8. Remove package in Bay 1, level A. 9. Transfer package to FP. 10. Remove package from FP and transfer back to MDA wall.	
D. Reposition Foot Restraint	11. NA 12. Secure package to MDA wall.	
E. Package Operation in Bay 1A, level C	13. NA 14. Translate to package in Bay 1A, level C. 15. NA	
	16. NA 17. Remove package in Bay 1A, level C. 18. Transfer package to FP.	
	19. Remove package from FP, and transfer back to MDA wall, where originally removed.	

TEST PROCEDURE FOR CONCEPT NO. 2 - SHIRTSLEEVE (Continued)

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TASK	DETAILED ELEMENTS	NOTES
F. Reposition Foot Restraint	20. Secure package to MDA wall. 21. NA 22. Translate to package in Bay 3A, Level D. 23. NA	
G. Package Operation in Bay 3A, Level D	24. NA 25. Remove package in bay 3A, level D. 26. Transfer package to area of FP. 27. Transfer package back to MDA wall where detached. 28. Secure package to MDA wall.	
H. Reposition Foot Restraint	29. NA 30. Translate to SAL and stabilize. 31. NA	
I. SAL Operations	32. NA 33. NA	
J. Reposition Foot Restraint	34. NA 35. Translate to T-003 package in bay 3, level A, stabilize.	
K. T-003 Package Operations	36. NA 37. NA 38. Remove T-003 Package. 39. Transfer package to forward window above bay 1A, stabilize with one hand.	

TEST PROCEDURE FOR CONCEPT NO. 2 - SHIRTSLEEVE (Continued)

TASK	DETAILED ELEMENTS	NOTES
	<p>40. Transfer package back to stowage area, stabilize.</p> <p>41. Stow and secure T-003 package.</p>	

TEST PROCEDURE CONCEPT 2 - VENTED SUIT

22

TASK	DETAILED ELEMENTS	NOTES
A. STS Panel Operations	1. Translate from access port to STS control panel, stabilize on foot restraint. 2. NA	
B. Reposition Foot Restraint	3. NA 4. NA 5. Translate to M-487 package in bay 1, stabilize. 6. NA	
C. M-487 Package Operations	7. NA 8. Remove M-487 from MDA wall. 9. Transfer package to FP. 10. Release package, and transfer to MDA wall. 11. NA 12. Secure package to MDA wall.	
D. Reposition Foot Restraint	13. NA	
E. Reposition Foot Restraint T-003 Removal	14. Translate to T-003 package in bay 3A, level A, stabilize. 15. NA	
F. T-003 Package Operation	16. NA 17. Remove T-003 package. 18. Transfer package to forward window in bay 1A, stabilize using one hand. 19. Transfer package back to stowage location, stabilize. 20. Stow and secure T-003 package.	

TEST PROCEDURE FOR CONCEPT NO. 3 - SHIRTSLEEVE

TASK	DETAILED ELEMENTS	NOTES
A. STS Panel Operations	1. Translate from access port to STS control panel, stabilize on foot restraint.	
	2. NA	
B. Reposition SOFR	3. NA	
	4. NA	
	5. Translate to package in bay 1, level A.	
	6. NA	
C. Package Operations in Bay 1.	7. Assume stable attitude.	
	8. Remove package in bay 1, level A.	
	9. Transfer package to FP.	
	10. Remove package from FP, and transfer back to MDA wall where originally removed.	
	11. NA	
	12. Secure package to MDA wall.	
D. Reposition SOFR	13. NA	
	14. Translate to package in Bay 1A, level C.	
	15. NA	
E. Package Operations in Bay 1A, level C	16. Assume stable attitude.	
	17. Remove package in Bay 1A, level C.	
	18. Transfer package to FP.	
	19. Remove package from FP and transfer back to MDA wall, where originally removed.	

TEST PROCEDURE FOR CONCEPT NO. 3 ~ SHIRTSLEEVE (Continued)

24

TASK	DETAILED ELEMENTS	NOTES
F. Reposition SOFR	20. Secure package to MDA wall. 21. NA	
G. Package Operations in Bay 3A, Level D	22. Translate to package in Bay 3A, level D, stabilize. 23. NA 24. NA 25. Remove package in Bay 3A, level D. 26. Transfer package to area of FP. 27. Transfer package back to MDA wall where attached. 28. Secure package to MDA wall.	
H. Reposition SOFR	29. NA 30. Translate to SAL and stabilize.	
I. SAL Operations	31. NA 32. NA 33. Perform reach envelope test.	
J. Reposition SOFR	34. NA 35. Translate to T-003 package in bay 3, level A, stabilize.	
K. T-003 Package Operation	36. NA 37. NA 38. Remove T-003 package.	

TEST PROCEDURE FOR CONCEPT NO. 3 - SHIRTSLEEVE (Continued)

TASK	DETAILED ELEMENTS	NOTES
	<p>39. Transfer package to forward window above bay 1A, stabilize with one hand.</p> <p>40. Transfer package back to stowage locations stabilize.</p> <p>41. Stow and secure package.</p>	

TEST PROCEDURE CONCEPT 3 - VENTED SUIT

TASK	DETAILED ELEMENTS	NOTES
A. STS Panel Operations	1. Translate from access port to STS control panel stabilize. 2. NA	
B. Reposition SOFR	3. NA 4. NA	
C. M-487 Package Operations	5. Translate to M-487 package in bay 1, stabilize 6. NA	
D. Reposition SOFR	7. NA 8. Remove M-487 from MDA wall.	
E. Reposition SOFR	9. Transfer package to FP. 10. Release package and transfer to MDA wall. 11. NA	
F. T-003 Package Operation	12. Secure package to MDA wall. 13. NA	
G. Reposition SOFR	14. NA 15. Translate to T-003 package in bay 3A level A, stabilize.	
H. Reposition SOFR	16. NA	
I. T-003 Package Operation	17. NA 18. Remove T-003 package.	
J. Reposition SOFR	19. Transfer package to forward window in bay 1A, stabilize with one hand.	

TEST PROCEDURE CONCEPT 3 - VENTED SUIT (Continued)

TASK	DETAILED ELEMENTS	NOTES
	<ol style="list-style-type: none"><li data-bbox="551 334 1543 385">20. Transfer package back to stowage location stabilize.<li data-bbox="551 385 1543 436">21. Stow and secure T-003 package.	

TEST PROCEDURE FOR CONCEPT NO. 4. - SHIRTSLEEVE

TASK	DETAILED ELEMENTS	NOTES
A. STS Panel	1. Translate from port no. 5 to STS panel; stabilize on foot restraint. 2. Perform	
B. Reposition Foot Restraint (see note a)	3. Not applicable (NA). 4. NA 5. Translate to MRFR in bay 1, level A. 6. NA	a. The MRFR mockup must be repositioned by test personnel to location forward of package in bay 3, level A.
C. Package Operations in Bay 1, Level A	7. Assume stable attitude on MRFR (see note a). 8. Remove package in bay 1. 9. Transfer package to FP. 10. Remove package from FP, and transfer back to MDA wall where originally removed.	a. Subject starts task from stable position with both hands on MRFR, and head oriented toward package.
D. Not Applicable (NA)	11. NA 12. Secure package to MDA wall. 13. NA 14. Translate to package in bay 1A, level C.	
E. Package Operation in Bay 1A, Level C	15. Assume stable attitude on MRFR (see note a). 16. Remove package in level C, bay 1A. 17. Transfer package to FP. 18. Remove package from FP, and transfer back to MDA wall where originally removed.	a. Subject starts task from stable position with both hands on MRFR, and head oriented toward package.

TEST PROCEDURE FOR CONCEPT NO. 4. - SHIRTSLEEVE (Continued)

TASK	DETAILED ELEMENTS	NOTES
F. Reposition Foot Restraint (see note a)	19. Secure package to MDA wall. 20. NA 21. NA 22. NA	a. The MRFR mockup must be repositioned by test personnel to location aft of package in bay 3A, level D.
G. Package Operations in Bay 3A, Level D	23. Assume stable attitude on MRFR (see note a). 24. Remove package in level D, Bay 3A. 25. Transfer package to area of FP. 26. Transfer package back to MDA wall where originally detached. 27. Secure package to MDA wall.	a. Subject starts task from stable position with both hands on MRFR, and head oriented toward package.
H. Reposition Foot Restraint (see note a)	28. NA 29. NA 30. NA	a. The MRFR mockup must be repositioned by test personnel to location aft of SAL.
I. SAL Operations	31. Assume stable attitude on MRF (see note a). 32. Perform reach envelope test.	a. Subject starts task from stable position with both hands on MRFR, and head oriented toward package
J. Reposition Foot Restraint (see note a)	33. NA 34. NA 35. NA	a. The MRFR mockup must be repositioned by test personnel to location aft of the forward window in bay 1A.

TEST PROCEDURE FOR CONCEPT NO. 4. - SHIRTSLEEVE (Continued)

03

TASK	DETAILED ELEMENTS	NOTES
K. T-003 Package Operations	36. Assume stable attitude on MRFR (see note a). 37. Remove package T-003. 38. Transfer package to forward area forward of bay 1A; stabilize with one hand. 39. Transfer package back to stowage package; stabilize using MRFR. 40. Stow and secure package T-003.	a. Subject starts task from stable position with both hands on the MRFR, and head oriented toward package.

TEST PROCEDURE EVALUATION OF CONCEPT NO. 4. - VENTED SUIT

TASK	DETAILED ELEMENTS	NOTES
A. STS Panel Operations	1. Translate to STS panel; stabilize on foot restraint. 2. Perform reach envelope test.	
B. Reposition Foot Restraint (see notes a and b)	3. Not applicable (NA) 4. NA 5. NA	a. The task of repositioning the MRFR is not included in this test since the mockup does not conform to flight hardware with respect to the repositioning operation.
C. M-487 Package Operations	6. Assume stable attitude on foot restraint (see note a). 7. Remove package from Bay 1 Level A. 8. Transfer package to FP. 9. Release package, and transfer to MDA wall. 10. Secure package to MDA wall.	a. Subject starts task from stable position with both hands on MRFR, and head oriented toward package.
D. Reposition Foot Restraint (see note a)	11. NA 12. NA 13. NA	a. The MRFR must be repositioned by test observers to location.
E. Reposition Foot Restraint (see note a)	14. NA 15. NA 16. NA	a. The MRFR must be repositioned by the test observers to location aft of T-003 package in bay 3A.

TEST PROCEDURE EVALUATION OF CONCEPT NO. 4. - VENTED SUIT (Continued)

32

TASK	DETAILED ELEMENTS	NOTES
F. T-003 Package Operations	17. Assume stable attitude using MRFR 18. Remove T-003 package. 19. Transfer package to forward window in bay 1A; stabilize using one hand. 20. Transfer package back to stowage package; stabilize using MRFR. 21. Stow and secure T-003 package.	a. Subject starts task from stable position with both hands on MRFR, and head oriented toward T-003 package.

APPENDIX B

PHOTOGRAPHS

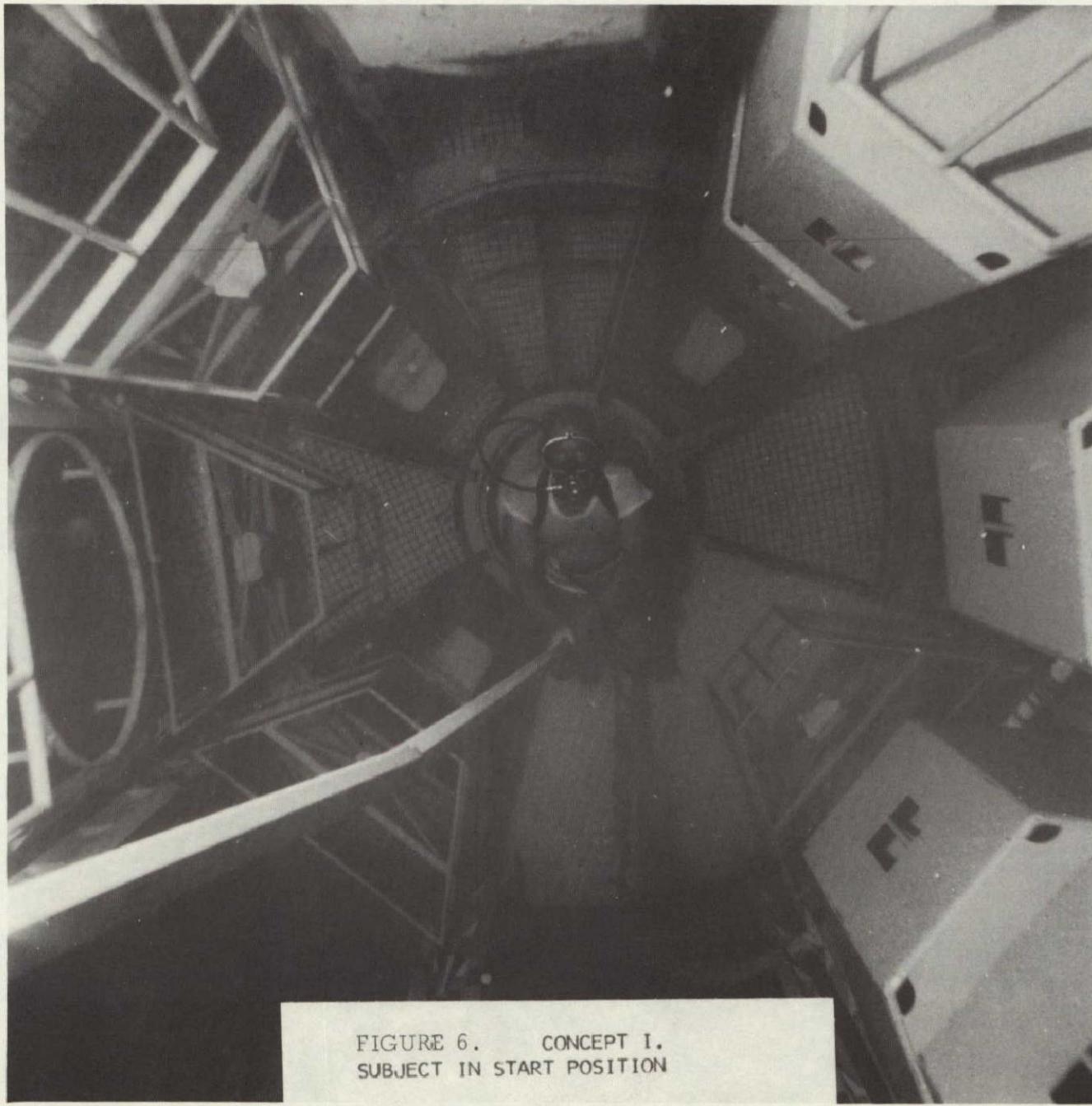


FIGURE 6. CONCEPT I.
SUBJECT IN START POSITION

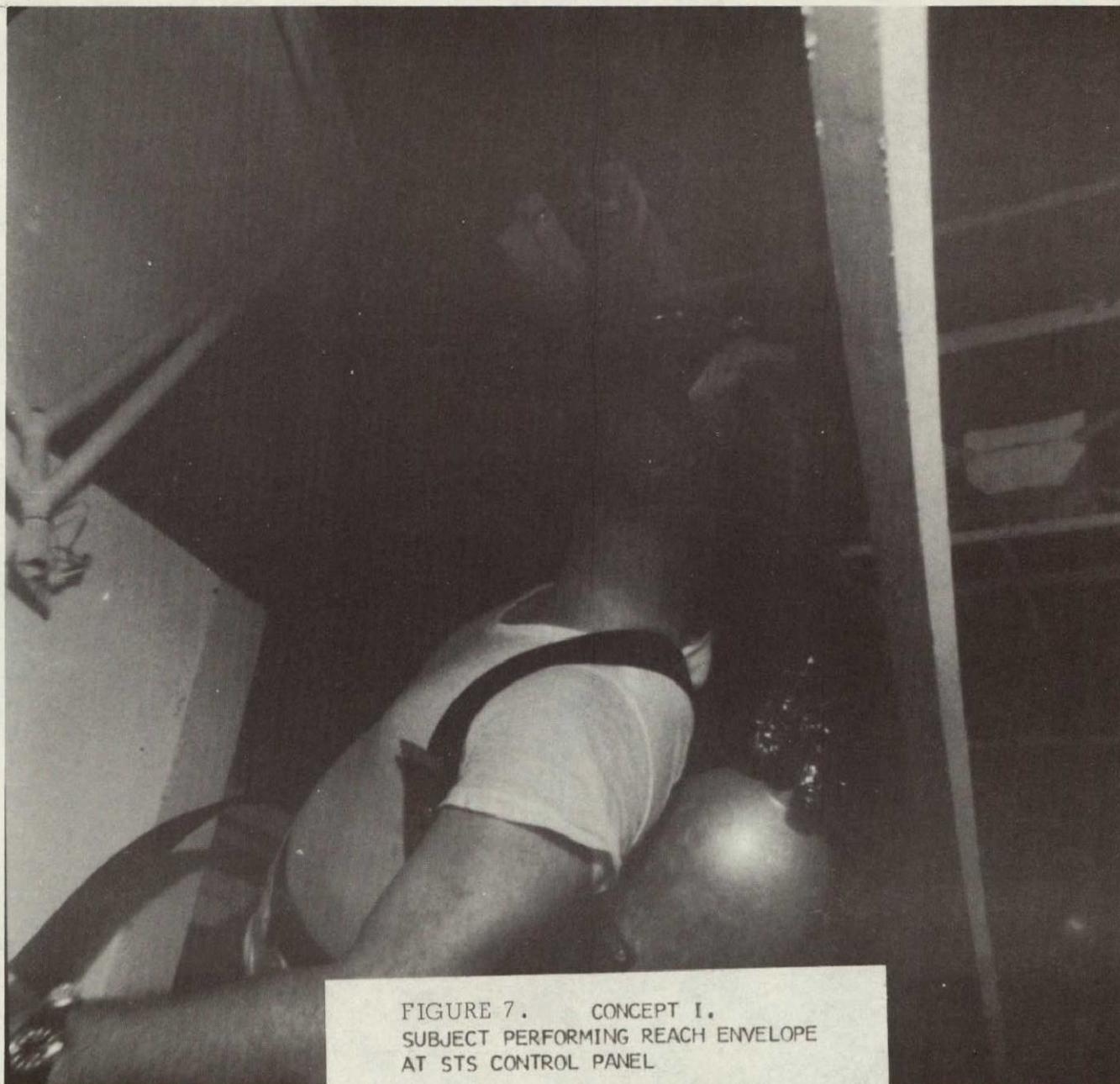


FIGURE 7. CONCEPT I.
SUBJECT PERFORMING REACH ENVELOPE
AT STS CONTROL PANEL

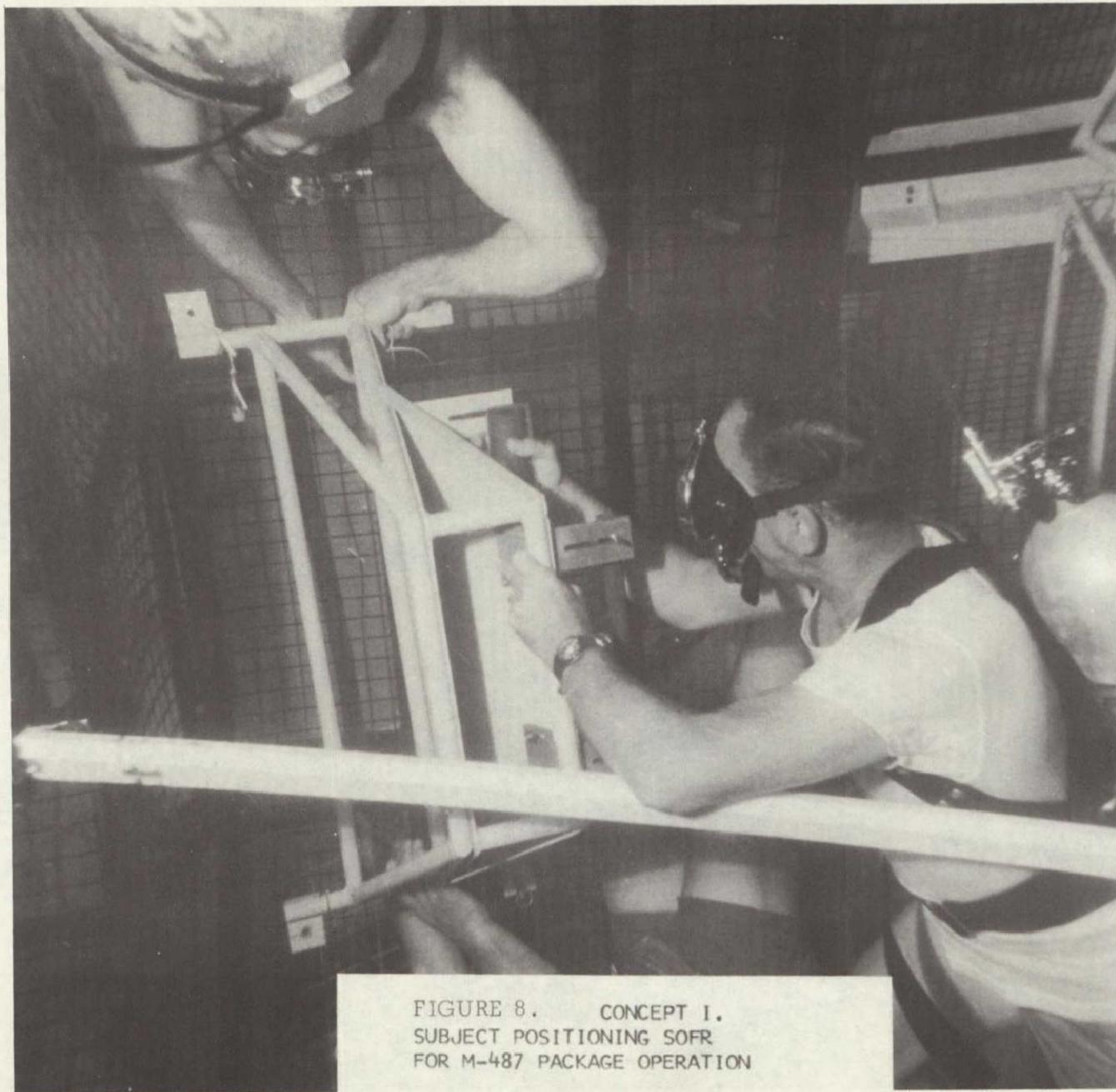


FIGURE 8. CONCEPT I.
SUBJECT POSITIONING SOFR
FOR M-487 PACKAGE OPERATION



FIGURE 9. CONCEPT I.
SUBJECT REMOVING M-487
PACKAGE WHILE IN SOFR

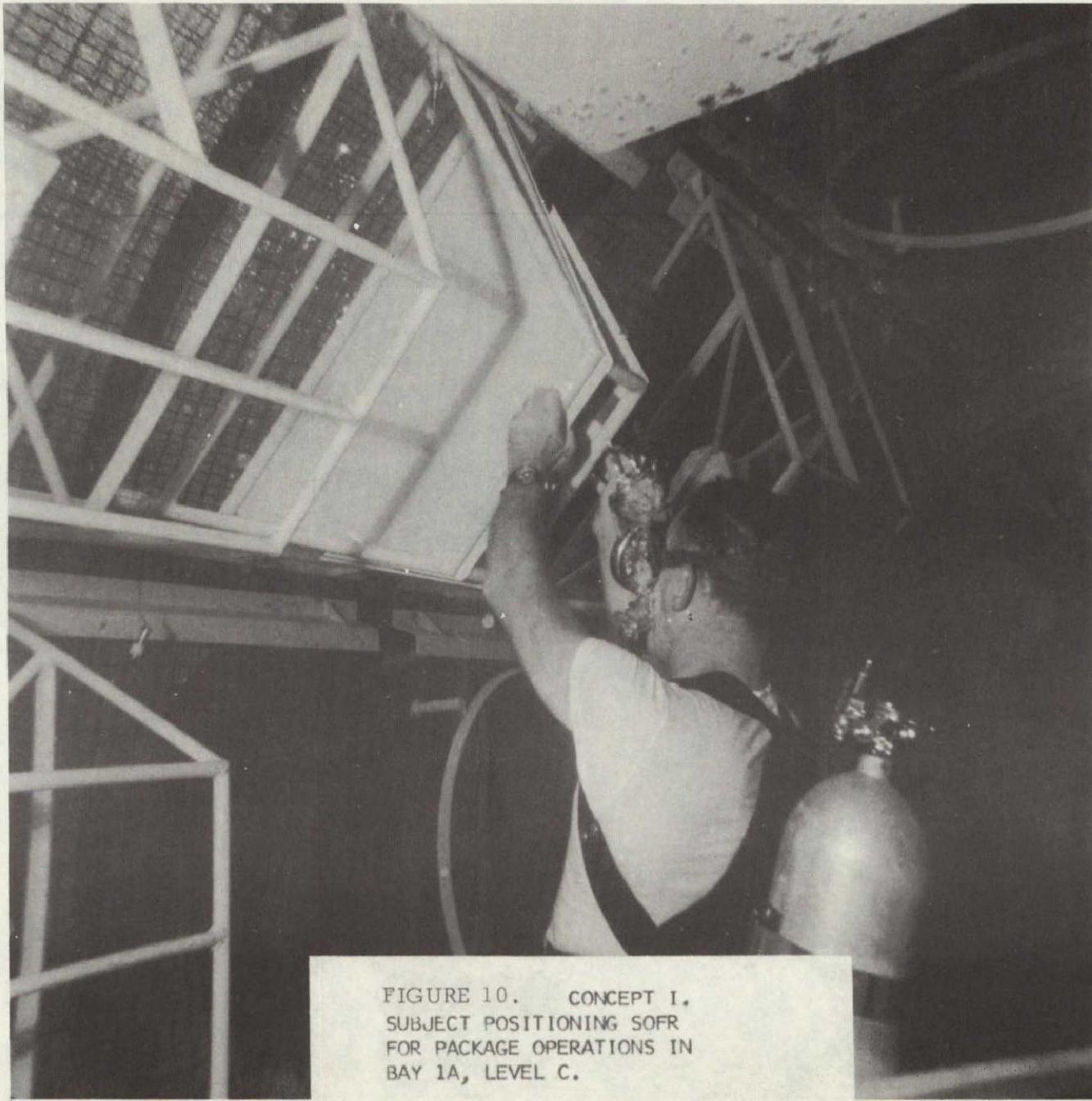


FIGURE 10. CONCEPT I.
SUBJECT POSITIONING SOFR
FOR PACKAGE OPERATIONS IN
BAY 1A, LEVEL C.

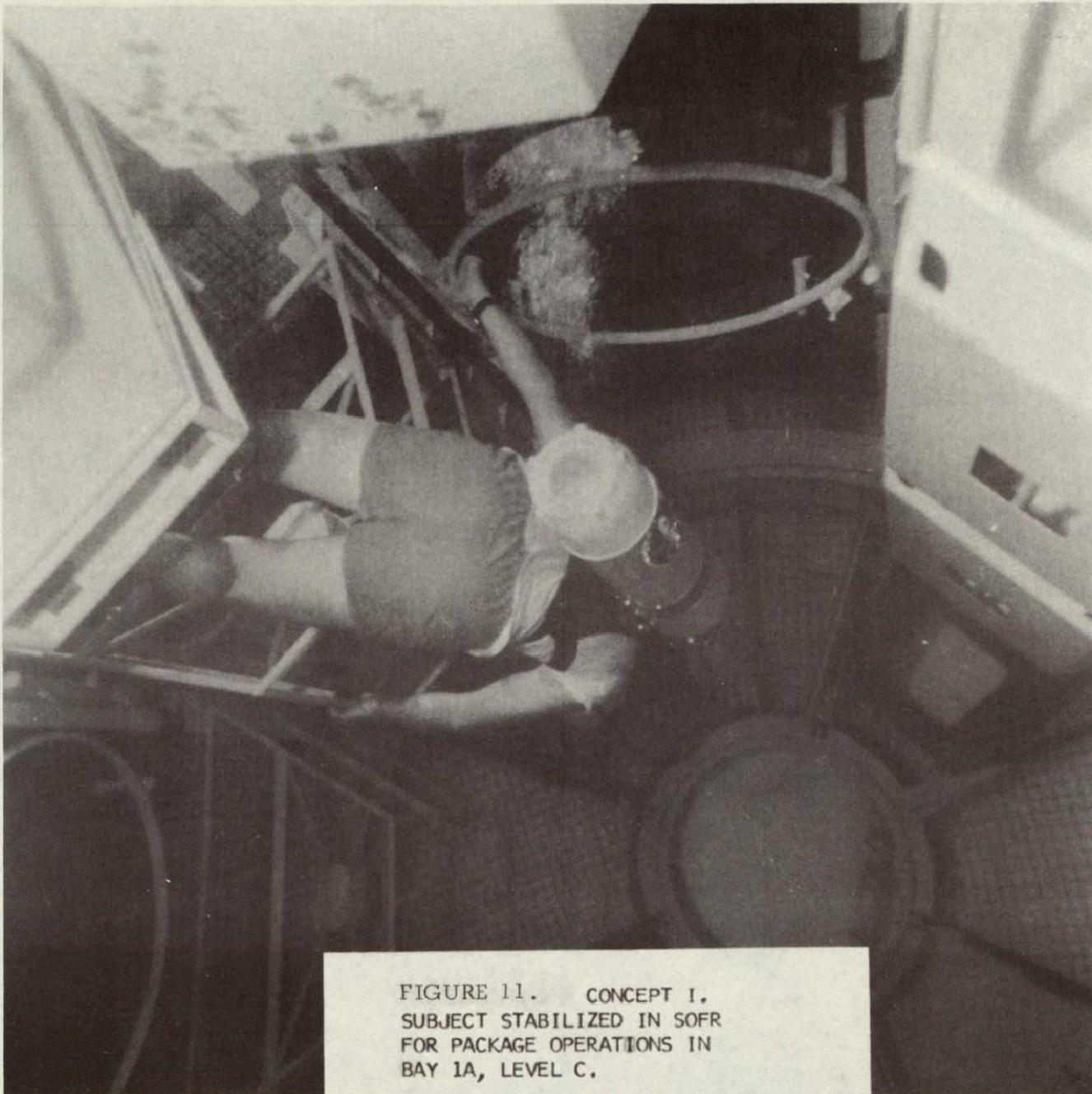


FIGURE 11. CONCEPT 1.
SUBJECT STABILIZED IN SOFR
FOR PACKAGE OPERATIONS IN
BAY 1A, LEVEL C.

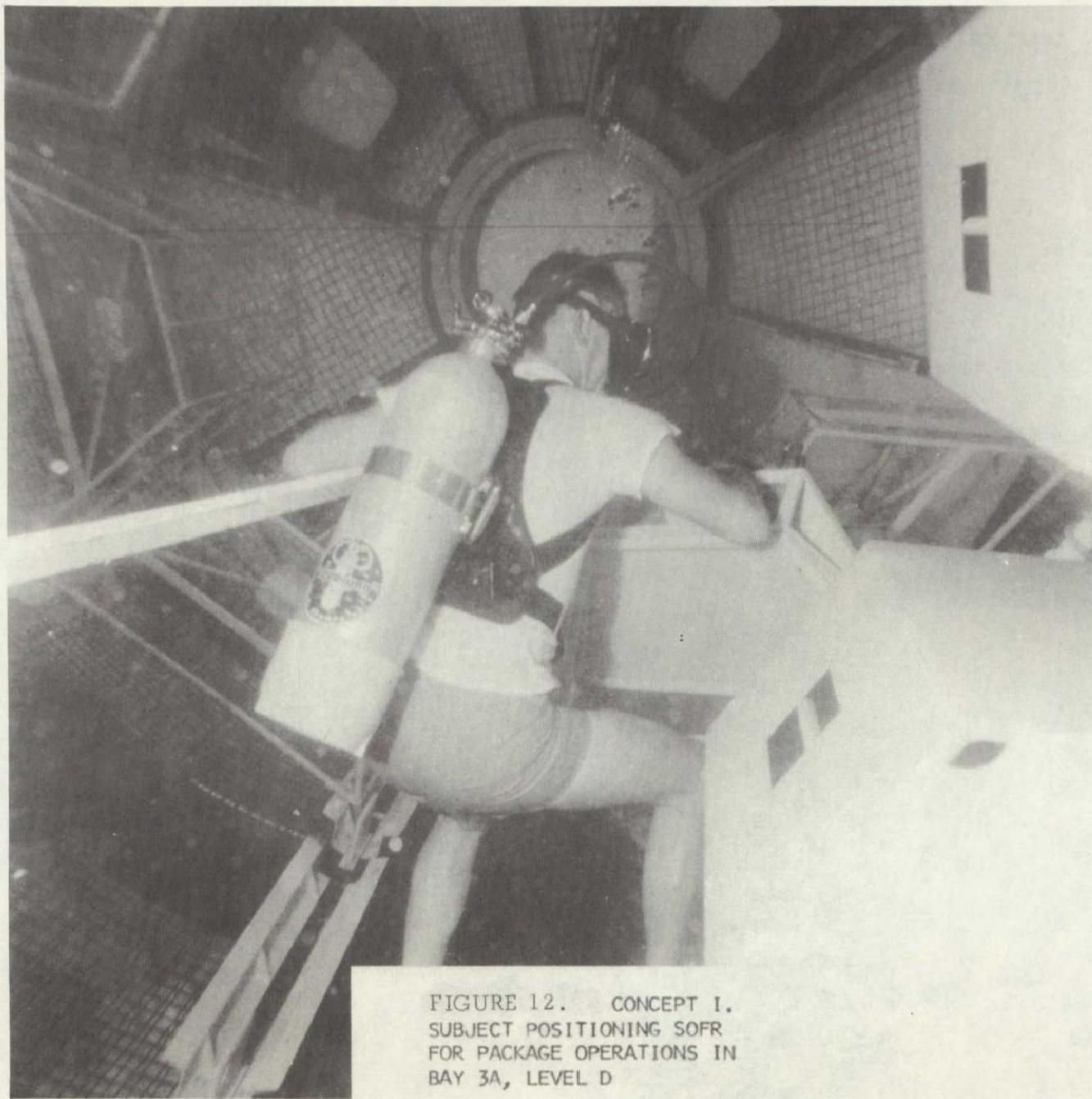


FIGURE 12. CONCEPT I.
SUBJECT POSITIONING SOFR
FOR PACKAGE OPERATIONS IN
BAY 3A, LEVEL D

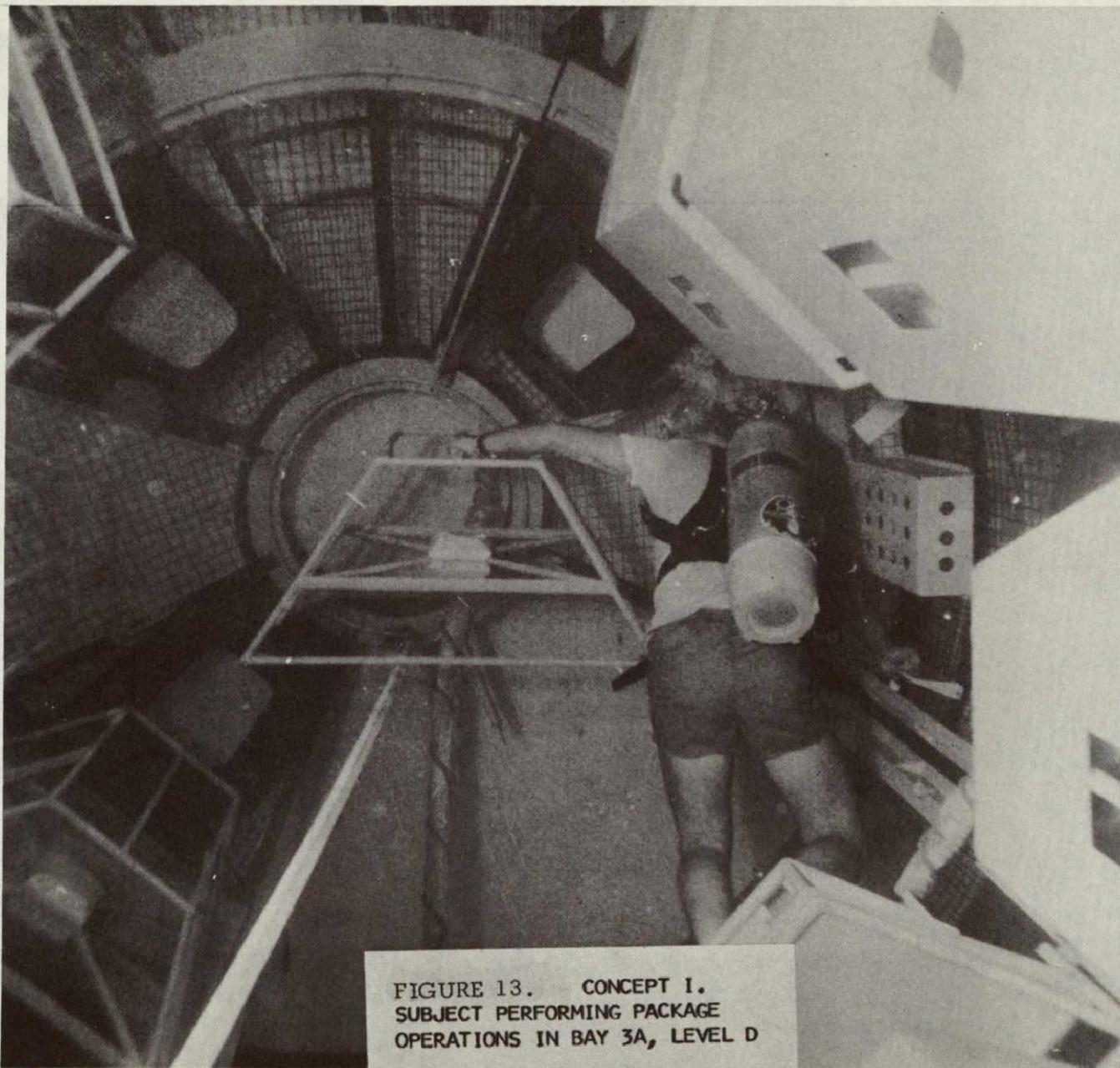


FIGURE 13. CONCEPT I.
SUBJECT PERFORMING PACKAGE
OPERATIONS IN BAY 3A, LEVEL D

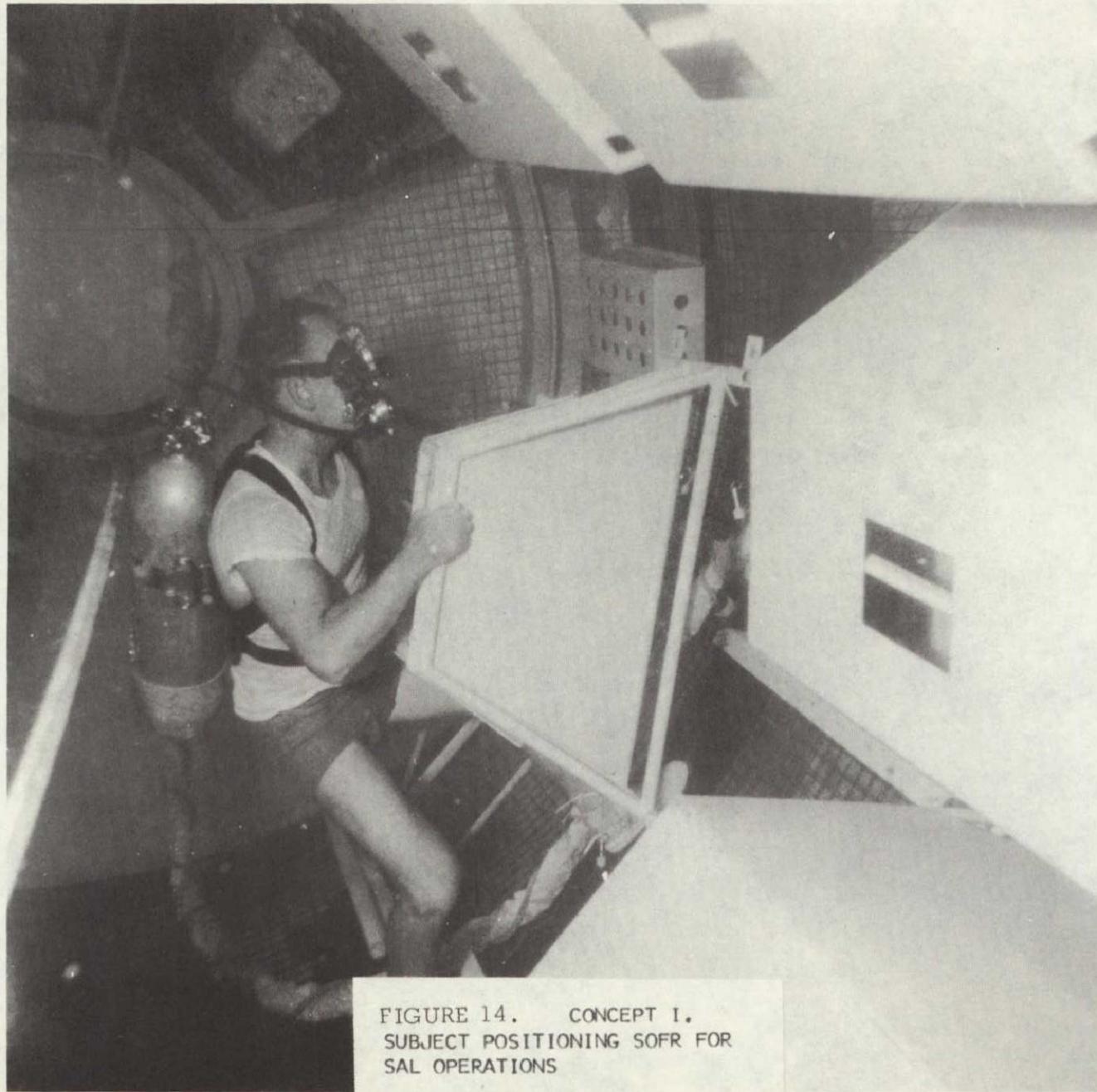


FIGURE 14. CONCEPT I.
SUBJECT POSITIONING SOFR FOR
SAL OPERATIONS

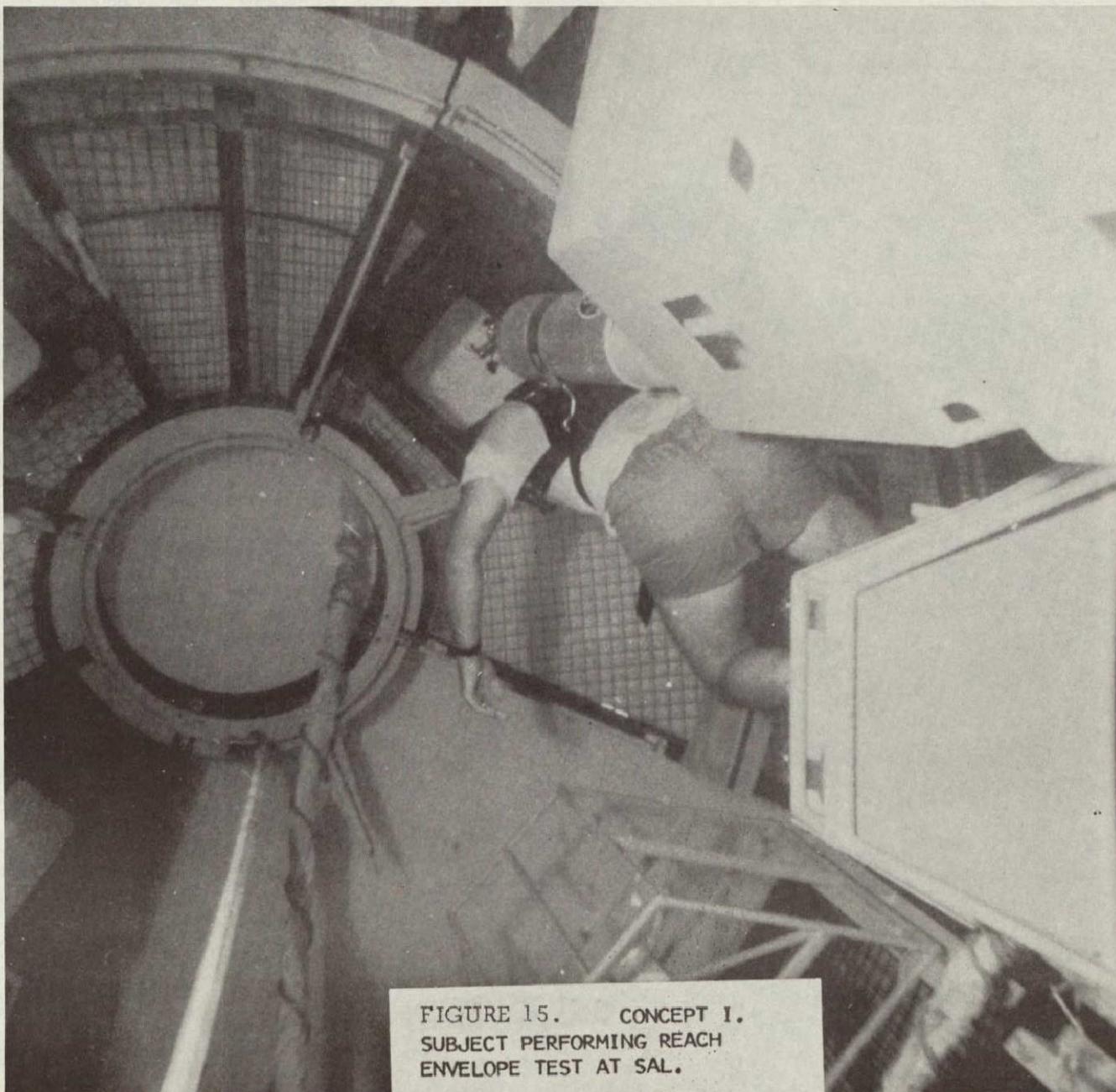


FIGURE 15. CONCEPT I.
SUBJECT PERFORMING REACH
ENVELOPE TEST AT SAL.

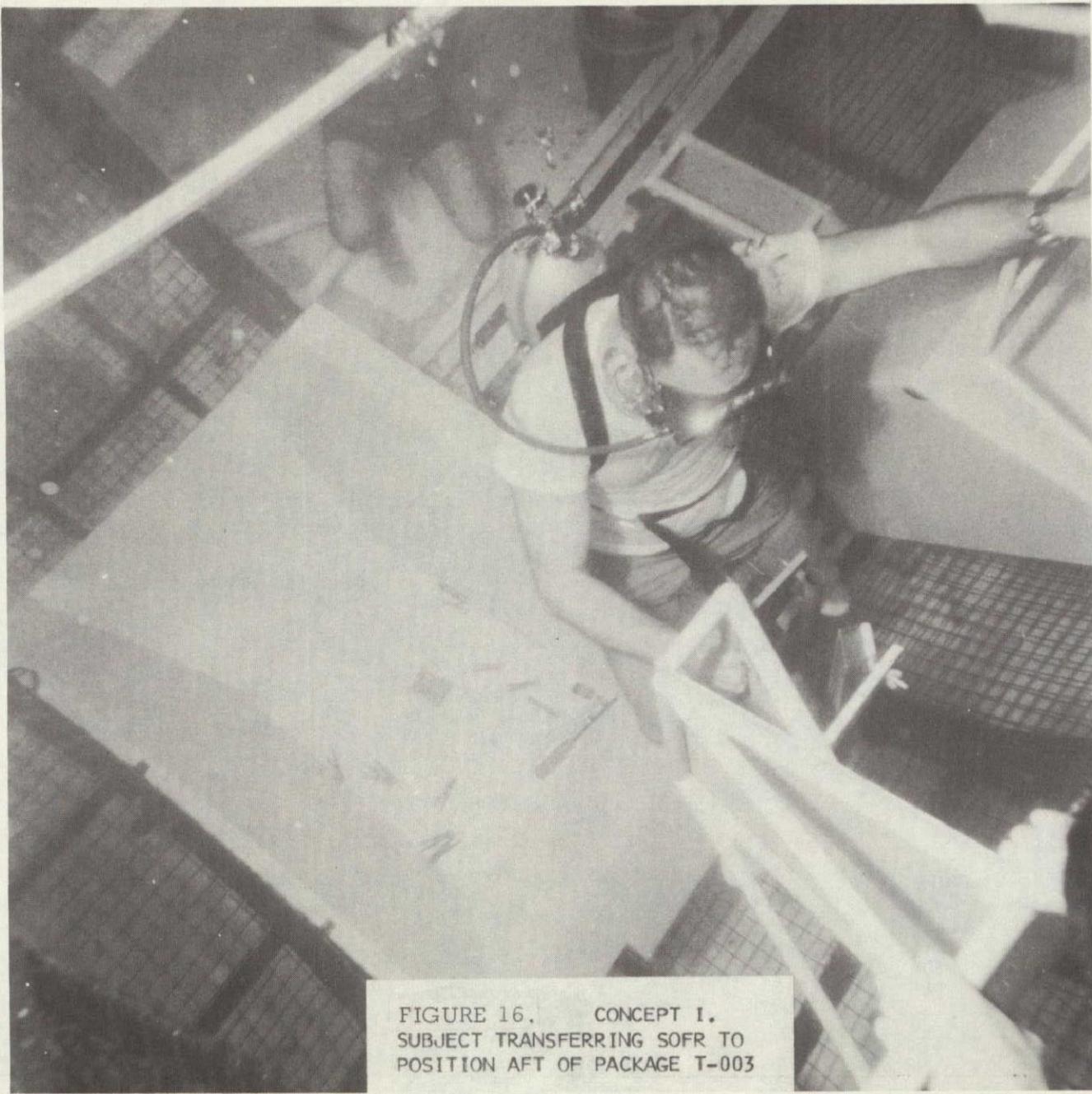


FIGURE 16. CONCEPT I.
SUBJECT TRANSFERRING SOFR TO
POSITION AFT OF PACKAGE T-003



FIGURE 17. CONCEPT I.
SUBJECT TRANSFERRING PACKAGE
T-003 TO FORWARD SECTION

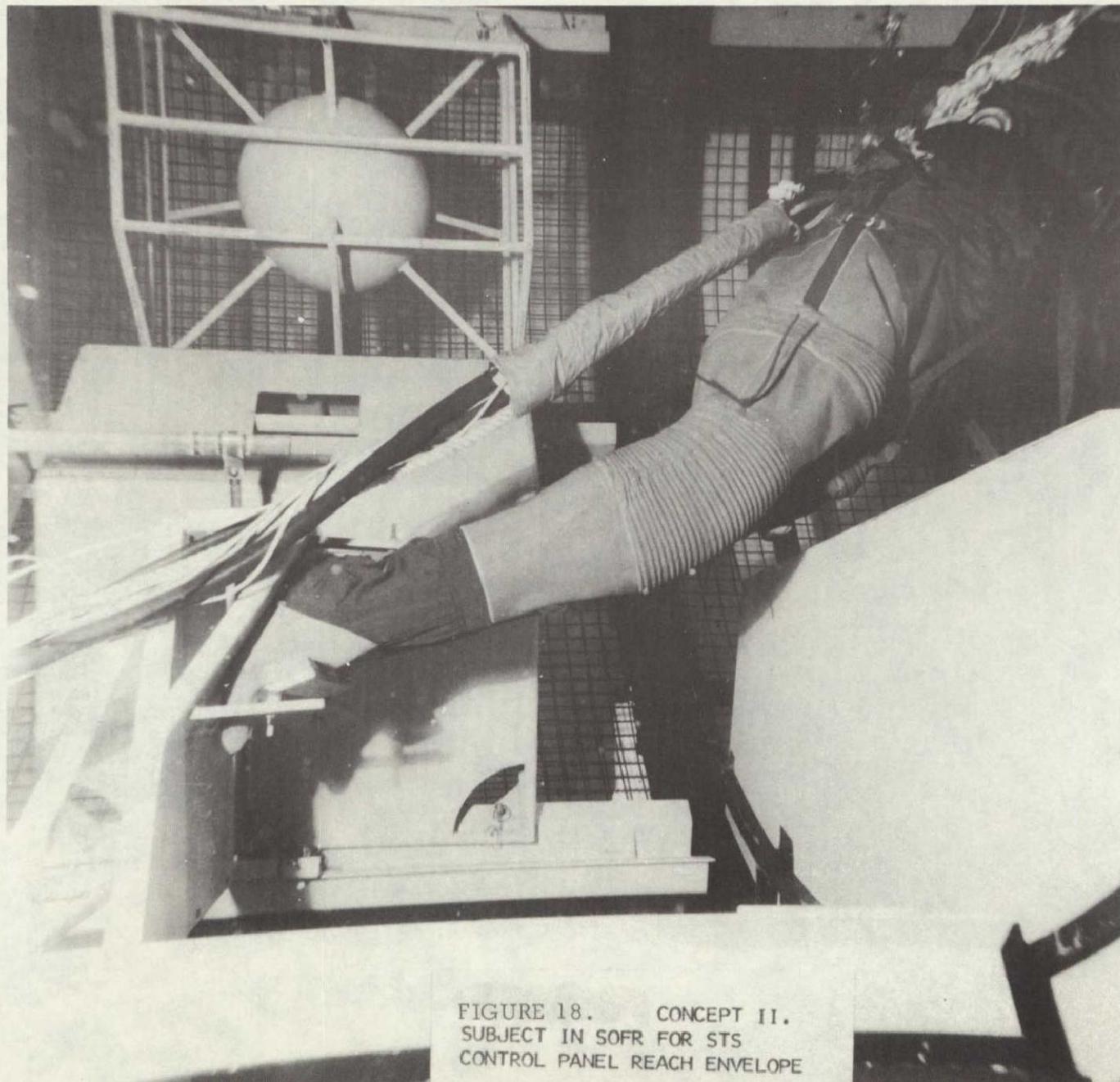


FIGURE 18. CONCEPT II.
SUBJECT IN SOFR FOR STS
CONTROL PANEL REACH ENVELOPE



FIGURE 19. CONCEPT II.
SUBJECT REMOVING M-487
PACKAGE FROM MDA WALL



FIGURE 20. CONCEPT II.
SUBJECT REMOVING T-003
PACKAGE FROM MDA WALL

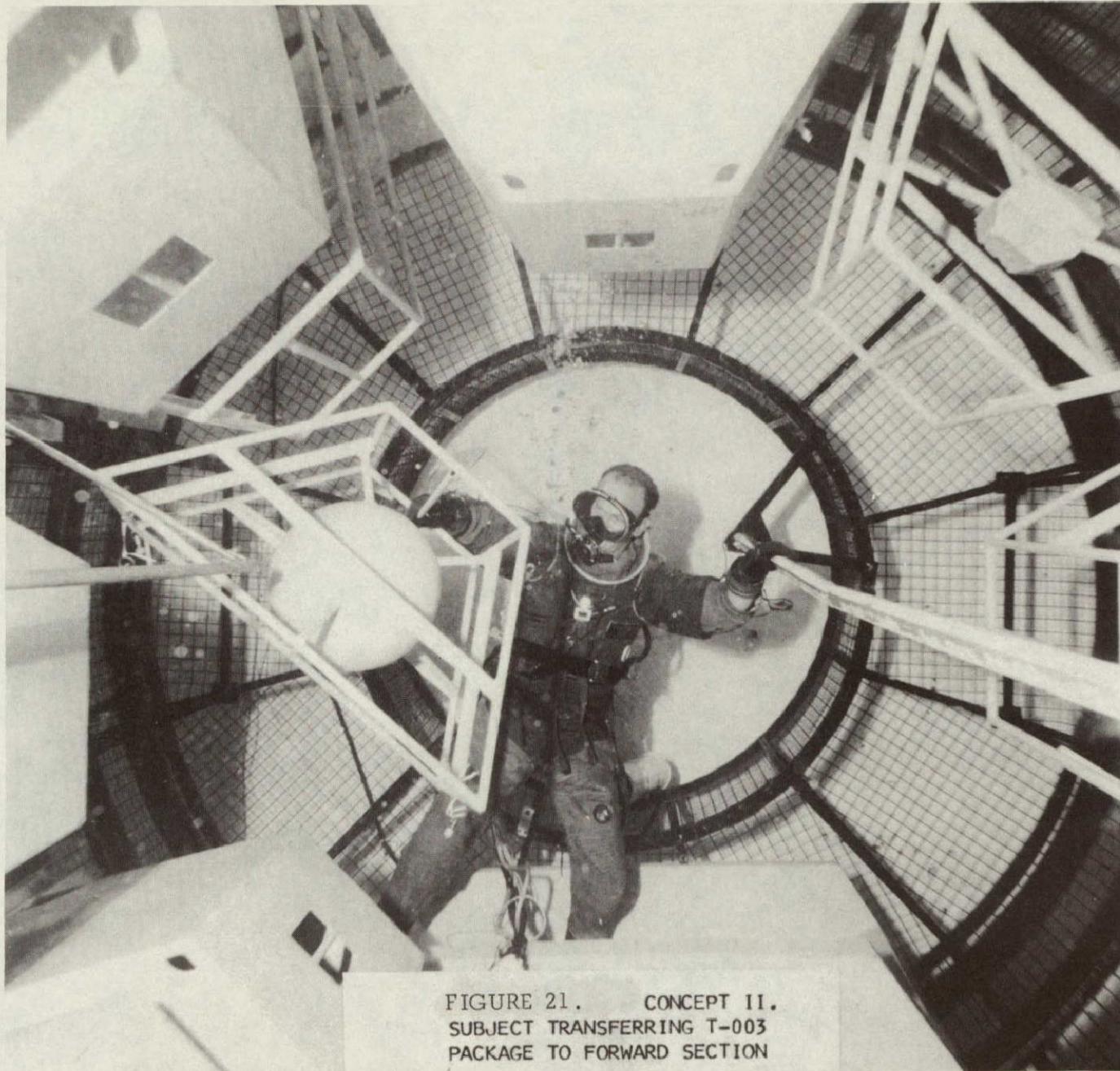


FIGURE 21. CONCEPT II.
SUBJECT TRANSFERRING T-003
PACKAGE TO FORWARD SECTION

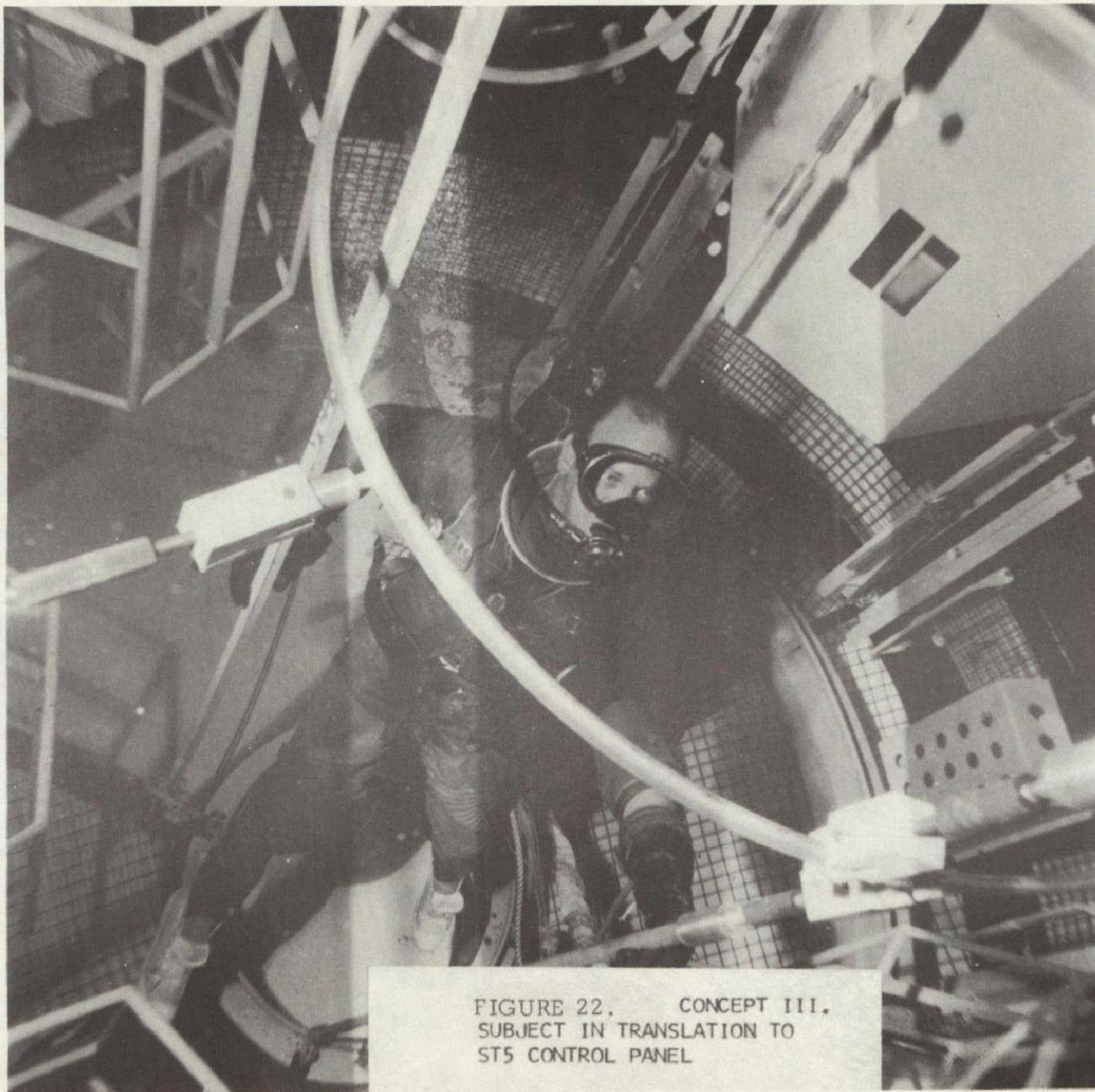


FIGURE 22, CONCEPT III,
SUBJECT IN TRANSLATION TO
ST5 CONTROL PANEL

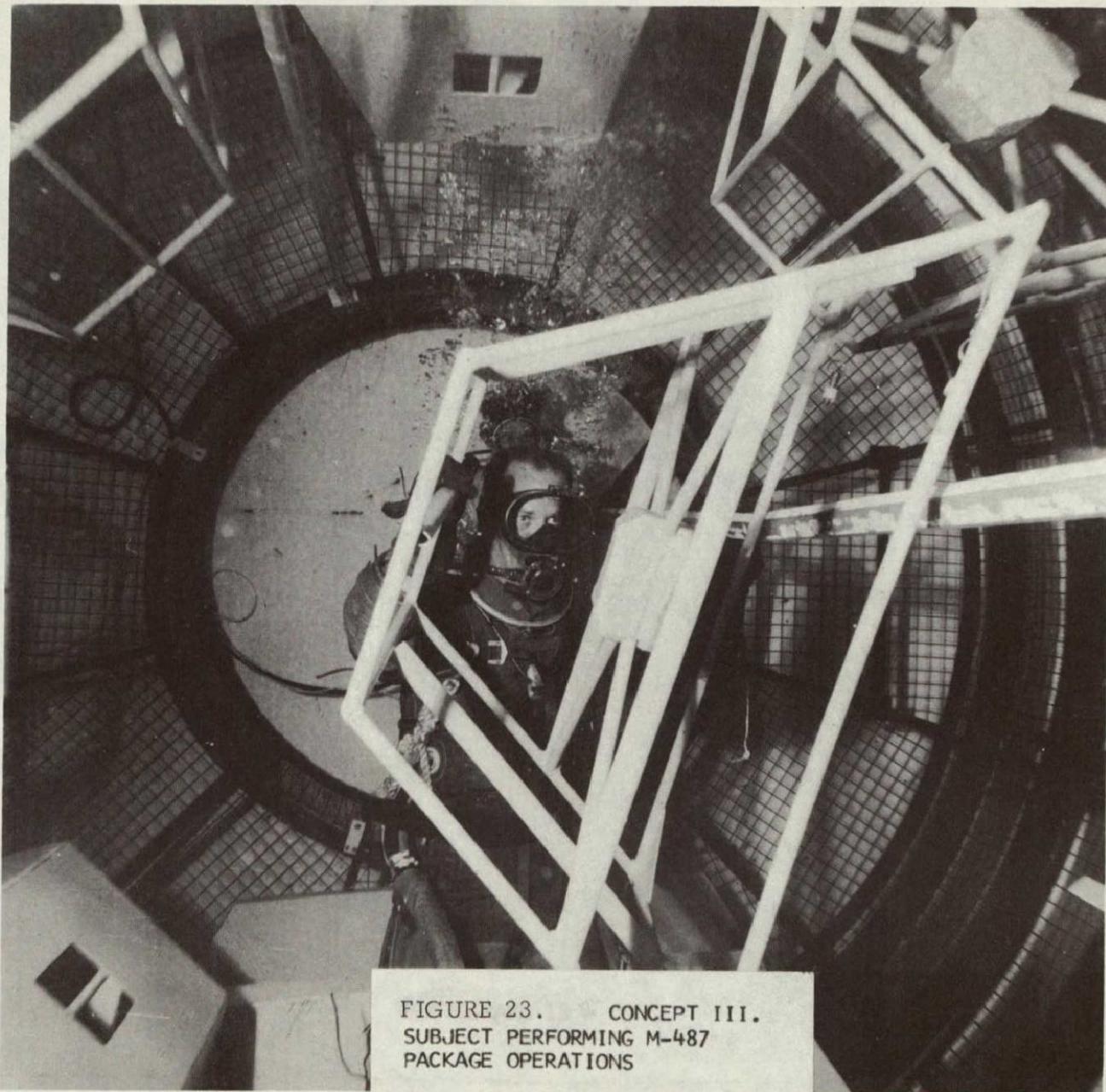


FIGURE 23. CONCEPT III.
SUBJECT PERFORMING M-487
PACKAGE OPERATIONS

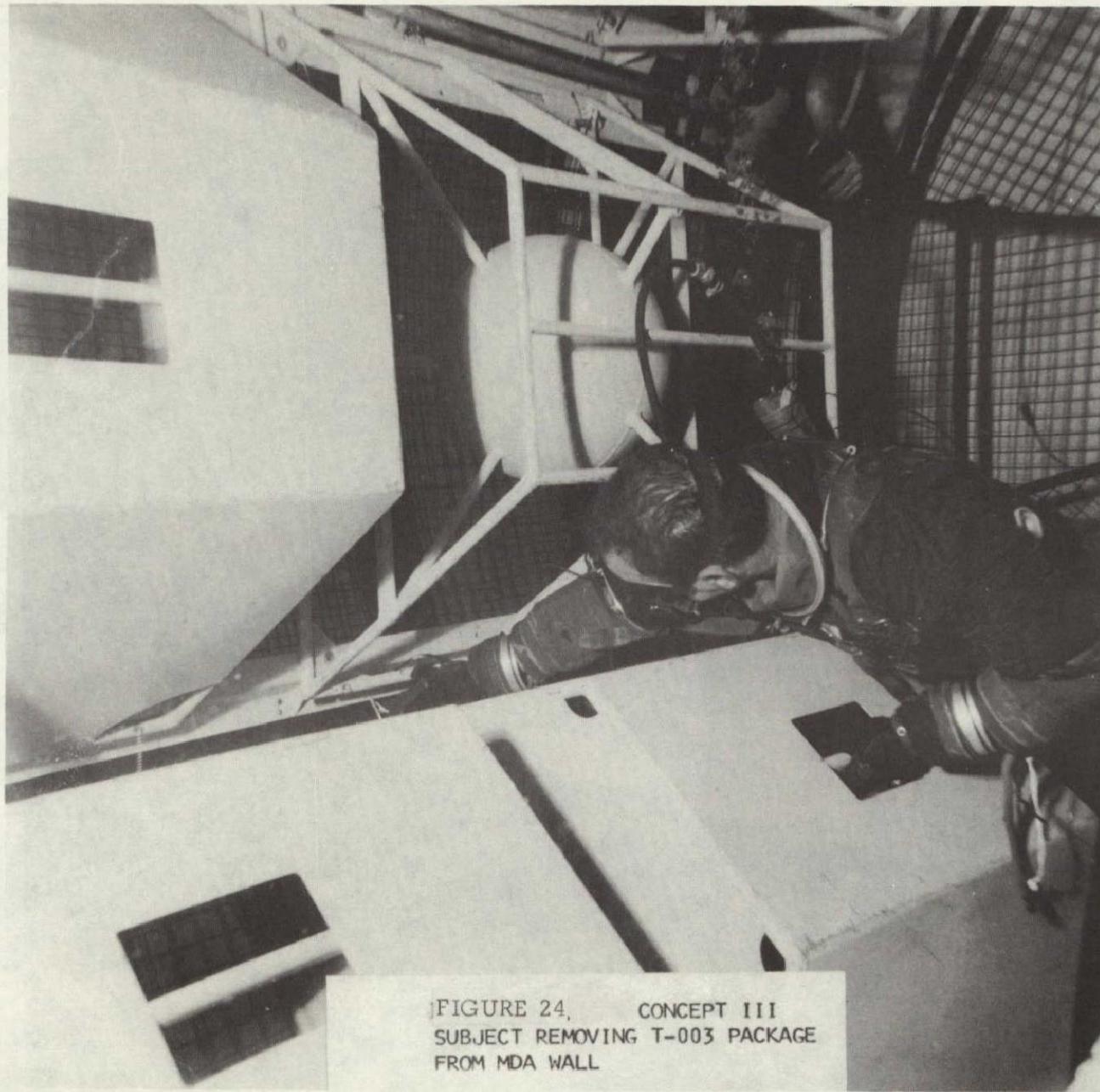


FIGURE 24, CONCEPT III
SUBJECT REMOVING T-003 PACKAGE
FROM MDA WALL

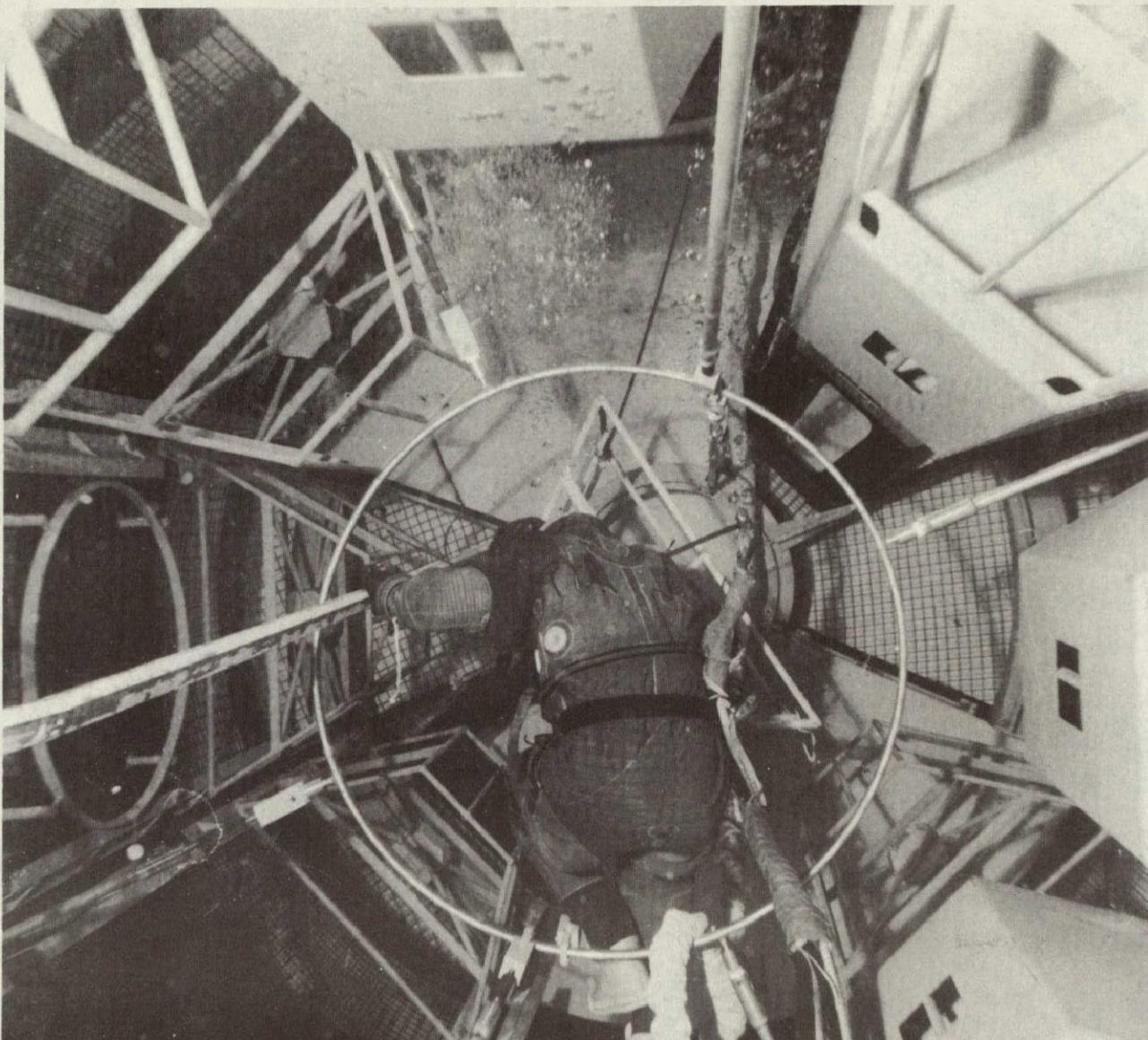
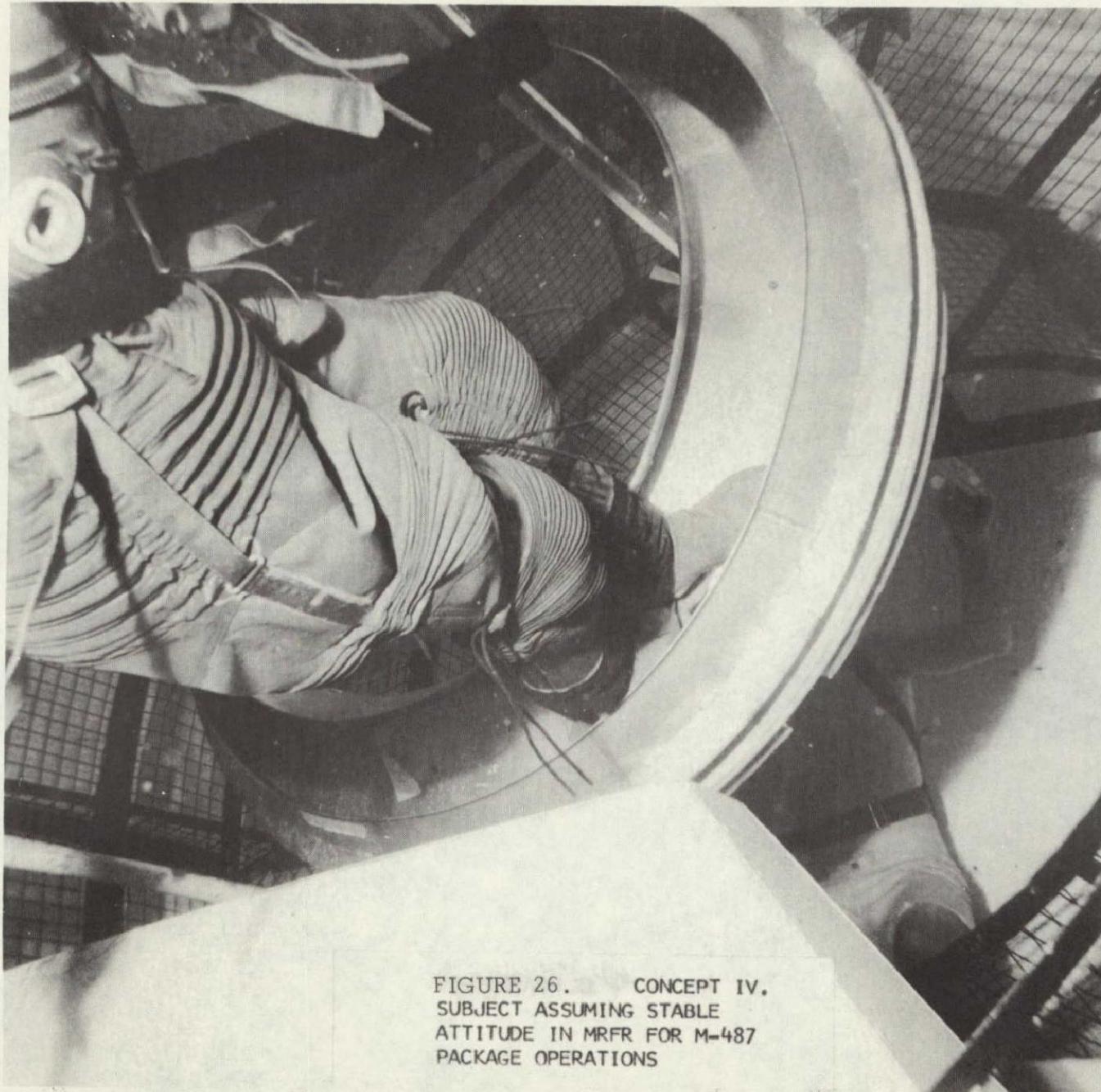


FIGURE 25. CONCEPT III.
SUBJECT TRANSFERRING T-003
PACKAGE TO FORWARD SECTION



11
FIGURE 26. CONCEPT IV.
SUBJECT ASSUMING STABLE
ATTITUDE IN MRFR FOR M-487
PACKAGE OPERATIONS

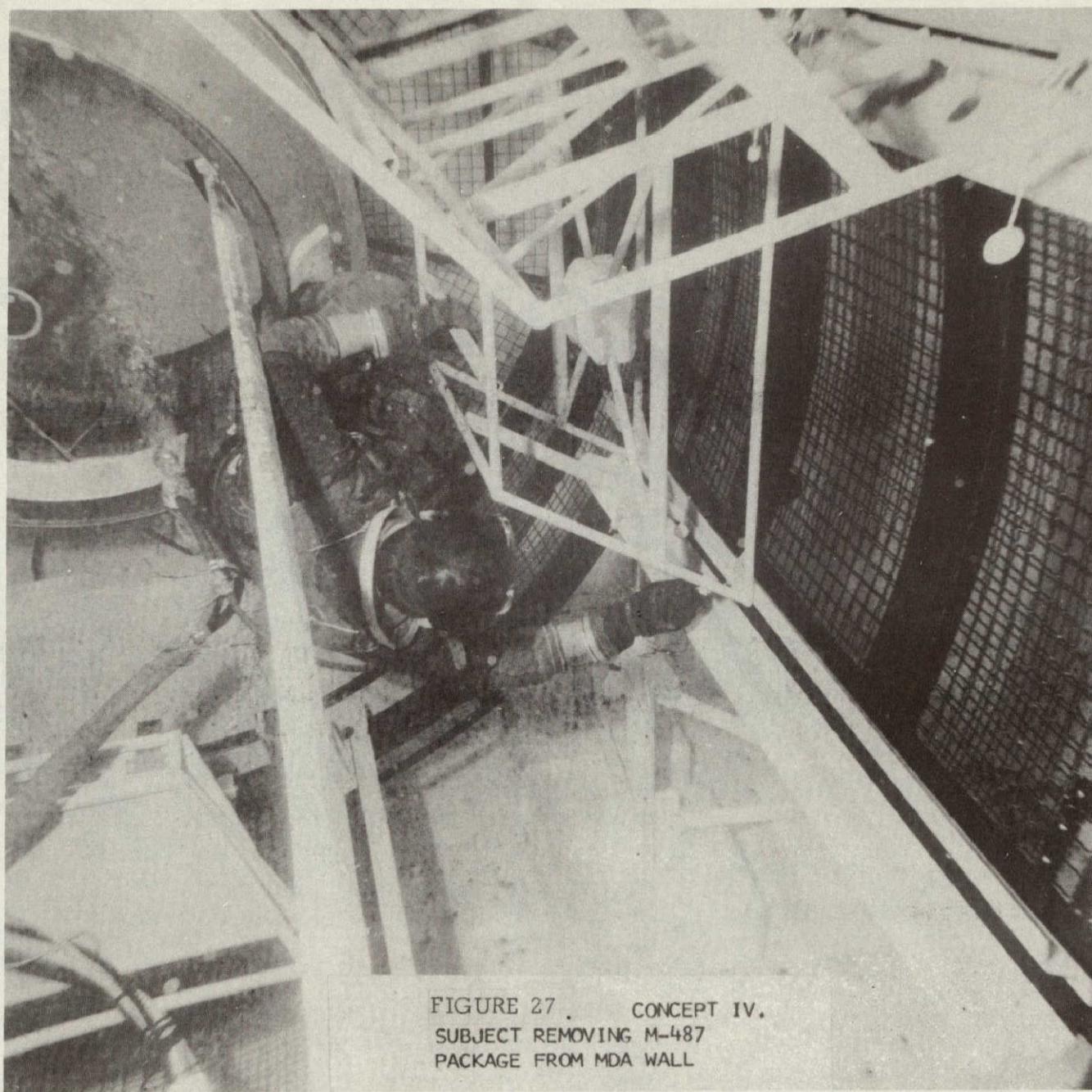


FIGURE 27. CONCEPT IV.
SUBJECT REMOVING M-487
PACKAGE FROM MDA WALL

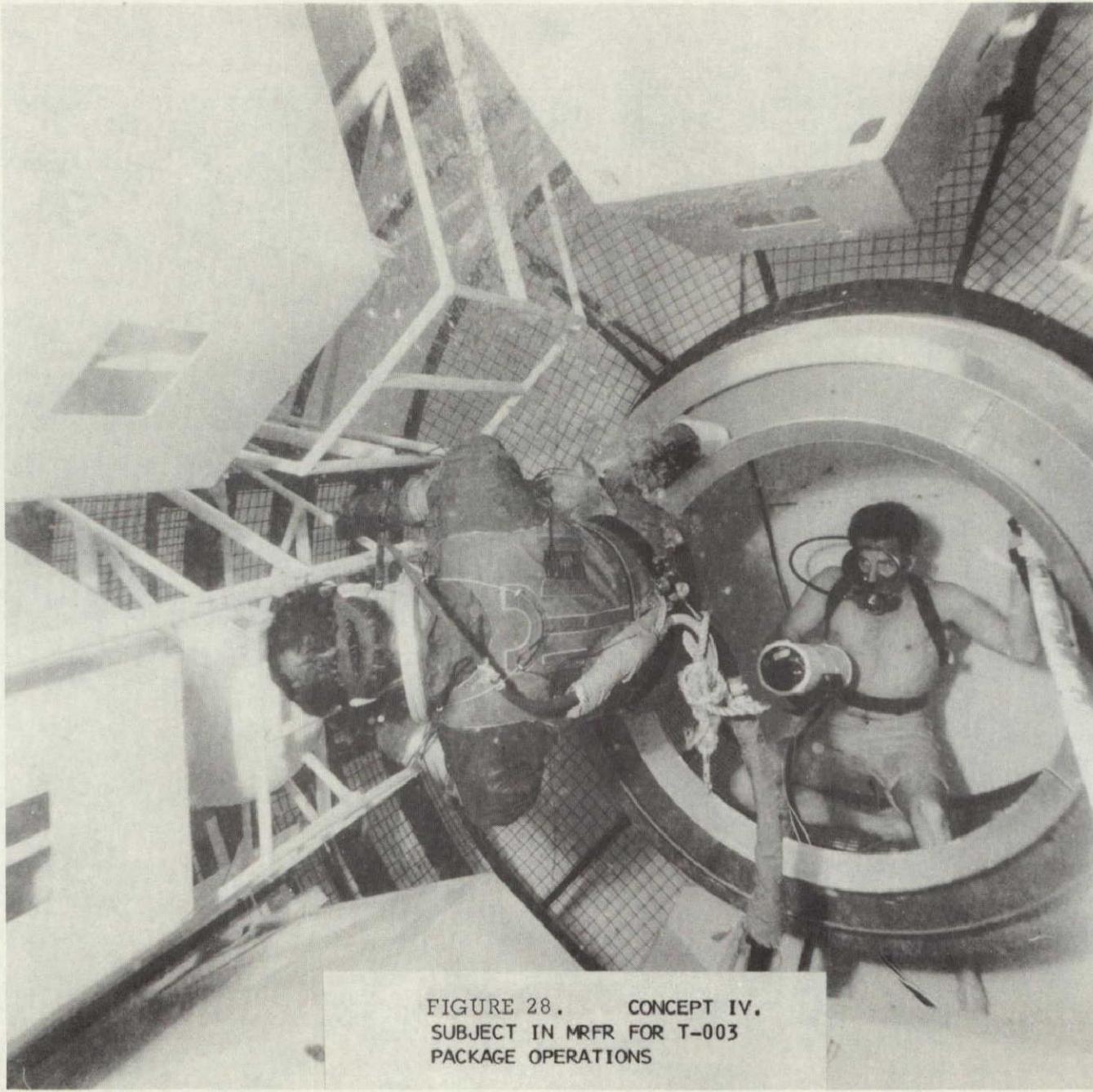


FIGURE 28. CONCEPT IV.
SUBJECT IN MRFR FOR T-003
PACKAGE OPERATIONS



FIGURE 29. CONCEPT IV.
SUBJECT REMOVING T-003
PACKAGE FROM MDA WALL



FIGURE 30. CONCEPT IV.
SUBJECT TRANSFERRING T-003
PACKAGE TO FORWARD SECTION

APPENDIX C
TIME DATA SHEETS

TIME DATA SHEET

MODE: Shirtsleeve
 CONCEPT: I

SUBJECT NO. 1
 TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:26	
	2	02:15	02:44	
B. Reposition Foot Restraint	3	03:33	04:02	
	4	04:19	04:33	
	5	04:59	05:16	
	6	05:31	05:34	
C. Package Operations in Bay 1	7&8	06:33	06:52	
	9&10	07:36	08:27	
	11	10:03	10:08	
D. Reposition Foot Restraint	12	10:21	10:41	
	13	11:10	11:23	
	14	11:50	12:38	
E. Package Operations in Bay 1A Level C	15	12:54	14:50	
	16	17:20	17:38	
	17	18:26	18:58	
	18	22:03	22:13	
	19	20:41	21:04	
F. Reposition Foot Restraint	20	21:23	21:57	
	21	22:24	22:49	
	22	23:46	24:13	
G. Package Operations in Bay 3 Level D	23	26:32	26:51	
	24	27:04	27:30	
	25	27:56	28:26	
	26	28:47	28:56	
	27	29:16	29:31	
H. Reposition Foot Restraint	28	29:45	30:52	
	29	32:04	32:33	
	30	32:56	33:04	
I. SAL Operations	31	33:20	34:20	
	32	35:29	35:54	
	33	36:23	37:40	
J. Reposition Foot Restraint	34	38:17	38:41	
	35	39:06	39:42	
K. T-003 Package Operations	26&37	40:44	41:11	
	38	41:25	41:51	
	39	42:10	42:45	
	40	43:06	43:48	
	41	44:16	45:13	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 1
TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:17	
	2	01:15	02:00	
B. Reposition Foot Restraint	3	04:31	04:50	
	4	05:36	05:44	
	5	07:08	07:11	
	6	07:50	08:04	
C. Package Operations in Bay 1	7&8	13:11	13:45	
	9&10	14:23	14:45	
	11	15:26	15:28	
D. Reposition Foot Restraint	12	16:10	16:42	
	13	17:39	17:56	
	14	18:55	19:06	
E. Package Operations in Bay 1A Level C	15	19:42	20:50	
	16	22:01	22:13	
	17	22:45	23:02	
	18	23:40	23:50	
	19	24:27	24:38	
F. Reposition Foot Restraint	20	25:07	25:44	
	21	26:30	26:44	
	22	27:22	27:43	
G. Package Operations in Bay 3 Level D	23	28:20	28:41	
	24	29:20	29:40	
	25	30:16	30:32	
	26	31:04	31:13	
	27	31:44	31:56	
H. Reposition Foot Restraint	28	32:38	33:20	
	29	34:08	34:28	
	30	35:40	35:47	
I. SAL Operations	31	36:19	36:54	
	32	38:04	38:18	
	33	39:00	39:31	
J. Reposition Foot Restraint	34	40:26	41:01	
	35	41:46	42:08	
K. T-003 Package Operations	36&37	45:40	44:06	
	38	44:44	44:58	
	39	45:33	46:05	
	40	46:44	46:05	
	41	48:07	49:25	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 1
TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:17	
	2	00:31	01:05	
B. Reposition Foot Restraint	3	01:33	01:42	
	4	02:03	02:09	
	5	02:25	02:43	
	6	02:56	03:03	
C. Package Operations in Bay 1	7&8	03:32	03:59	
	9&10	04:21	04:41	
	11	04:54	04:58	
D. Reposition Foot Restraint	12	05:08	05:32	
	13	05:52	06:03	
	14	06:21	06:44	
E. Package Operations in Bay 1A Level C	15	06:56	08:21	
	16	09:45	09:54	
	17	10:06	10:19	
	18	10:29	10:37	
	19	10:53	11:04	
F. Reposition Foot Restraint	20	11:37	11:56	
	21	12:29	13:07	
	22	13:26	13:40	
G. Package Operations in Bay 3 Level D	23	13:52	14:33	
	24	14:55	15:06	
	25	15:19	15:31	
	26	15:43	15:52	
	27	16:05	16:17	
H. Reposition Foot Restraint	28	16:28	16:51	
	29	17:11	17:37	
	30	17:53	17:59	
I. SAL Operations	31	18:10	18:39	
	32	18:59	19:08	
	33	19:19	19:33	
J. Reposition Foot Restraint	34	19:56	20:35	
	35	21:07	21:27	
K. T-003 Package Operations	36&37	21:51	22:06	
	38	22:27	22:58	
	39	23:15	23:48	
	40	24:02	24:45	
	41	24:58	25:32	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: RESTRAINTSSUBJECT NO. 1
TRIAL NO. 4

TASK	ELE- MENT	TIME		COMMENTS
		START	END	
A. STS Panel Operations	1	00:00	00:15	
	2	00:16	00:34	
B. Reposition Foot Restraint	3	01:15	01:30	
	4	02:50	02:58	
	5	03:20	03:34	
	6	03:50	04:00	
C. Package Operations in Bay 1	7&8	04:33	05:07	
	9&10	05:35	05:58	
	11	06:14	06:19	
D. Reposition Foot Restraint	12	06:30	07:01	
	13	07:23	07:44	
	14	08:23	09:24	
E. Package Operations in Bay 1A Level C	15	09:40	10:23	
	16	11:45	10:56	
	17	11:09	11:37	
	18	11:48	11:59	
	19	12:16	12:33	
F. Reposition Foot Restraint	20	12:45	13:15	
	21	13:35	14:11	
	22	14:45	15:13	
G. Package Operations in Bay 3 Level D	23	15:26	16:53	
	24	19:08	19:22	
	25	19:35	20:01	
	26	20:13	20:24	
	27	20:38	21:16	
H. Reposition Foot Restraint	28	21:28	21:41	
	29	22:04	22:34	
	30	22:51	22:58	
I. SAL Operations	31	23:10	23:36	
	32	23:56	24:08	
	33	24:19	24:39	
J. Reposition Foot Restraint	34	24:59	25:17	
	35	25:38	25:58	
K. T-003 Package Operations	36&37	26:22	26:40	
	38	27:01	27:15	
	39	27:31	28:11	
	40	28:28	29:07	
	41	29:23	30:45	

TIME DATA SHEET

MODE: Shirtsleeve
CONCEPT: RESTRAINTS

SUBJECT NO. 1
TRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:14	
	2	00:25	00:50	
B. Reposition Foot Restraint	3	01:13	01:21	
	4	01:32	01:38	
	5	01:54	02:10	
	6	02:21	02:28	
C. Package Operations in Bay 1	7&8	02:54	03:19	
	9&10	03:44	04:09	
	11	04:48	04:49	
D. Reposition Foot Restraint	12	05:08	05:32	
	13	05:50	06:06	
	14	06:25	06:58	
E. Package Operations in Bay 1A Level C	15	07:10	08:12	
	16	08:33	08:45	
	17	09:03	09:18	
	18	09:29	09:38	
	19	09:54	10:05	
F. Reposition Foot Restraint	20	10:14	10:41	
	21	12:46	13:17	
	22	13:36	13:56	
G. Package Operations in Bay 3 Level D	23	14:07	14:44	
	24	15:13	15:25	
	25	15:38	15:51	
	26	16:01	16:11	
	27	16:24	16:35	
H. Reposition Foot Restraint	28	16:44	17:05	
	29	17:25	17:52	
	30	18:07	18:13	
I. SAL Operations	31	18:24	19:14	
	32	19:33	19:44	
	33	19:54	20:14	
J. Reposition Foot Restraint	34	20:40	21:16	
	35	21:36	21:57	
K. T-003 Package Operations	36&37	22:21	22:36	
	38	22:55	23:19	
	39	23:36	24:14	
	40	24:29	25:15	
	41	25:26	26:33	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 1
TRIAL NO. 6

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:11	
	2	00:20	00:34	
B. Reposition Foot Restraint	3	01:10	01:18	
	4	01:34	01:41	
	5	01:57	02:11	
	6	02:23	02:36	
C. Package Operations in Bay 1	7&8	03:07	03:36	
	9&10	04:02	04:27	
	11	04:38	04:46	
D. Reposition Foot Restraint	12	04:59	05:35	
	13	05:55	06:15	
	14	06:32	07:01	
E. Package Operations in Bay 1A Level C	15	07:57	09:05	
	16	10:10	10:20	
	17	10:32	10:56	
	18	11:11	11:19	
	19	11:39	11:49	
F. Reposition Foot Restraint	20	12:03	12:30	
	21	12:48	13:09	
	22	13:27	13:46	
G. Package Operations in Bay 3 Level D	23	13:58	14:21	
	24	14:42	14:56	
	25	15:07	15:25	
	26	15:36	15:46	
	27	15:57	16:06	
H. Reposition Foot Restraint	28	16:16	16:38	
	29	16:56	17:19	
	30	17:35	17:46	
I. SAL Operations	31	17:58	18:22	
	32	18:40	18:51	
	33	19:00	19:17	
J. Reposition Foot Restraint	34	19:37	19:53	
	35	20:13	20:35	
K. T-003 Package Operations	36&37	21:01	21:15	
	38	21:36	21:49	
	39	22:03	22:38	
	40	23:08	23:46	
	41	24:01	24:51	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 1
TRIAL NO. 7

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:12	
	2	00:22	00:47	
B. Reposition Foot Restraint	3	01:10	01:19	
	4	01:34	01:41	
	5	01:58	02:15	
	6	02:27	02:38	
C. Package Operations in Bay 1	7&8	03:08	03:33	
	9&10	04:03	04:26	
	11	04:38	04:42	
D. Reposition Foot Restraint	12	04:51	05:16	
	13	05:33	05:55	
	14	06:13	06:50	
E. Package Operations in Bay 1A Level C	15	07:00	07:37	
	16	09:02	09:12	
	17	09:26	09:42	
	18	09:53	10:03	
	19	10:19	10:33	
F. Reposition Foot Restraint	20	10:44	11:09	
	21	11:26	11:56	
	22	12:14	12:37	
G. Package Operations in Bay 3 Level D	23	12:56	13:08	
	24	13:30	13:43	
	25	13:57	14:33	
	26	14:46	14:54	
	27	15:07	15:17	
H. Reposition Foot Restraint	28	15:29	15:52	
	29	16:11	16:39	
	30	16:55	17:05	
I. SAL Operations	31	17:16	17:43	
	32	18:01	18:11	
	33	18:20	18:48	
J. Reposition Foot Restraint	34	19:06	19:24	
	35	19:43	20:00	
K. T-003 Package Operations	36&37	20:26	20:43	
	38	21:12	21:30	
	39	21:48	22:20	
	40	22:38	23:16	
	41	23:30	24:03	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 2
TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:24	
	2	00:37	01:10	
B. Reposition Foot Restraint	3	02:40	03:10	
	4	03:28	03:34	
	5	03:51	03:57	
	6	04:07	04:23	
C. Package Operations in Bay 1	7&8	05:06	05:56	
	9&10	06:17	06:46	
	11	06:58	06:59	
D. Reposition Foot Restraint	12	07:12	08:00	
	13	08:27	08:45	
	14	09:23	10:05	
E. Package Operations in Bay 1A Level C	15	10:18	11:30	
	16	11:54	12:09	
	17	12:21	12:46	
	18	12:59	13:06	
	19	13:22	13:34	
F. Reposition Foot Restraint	20	13:45	14:24	
	21	14:44	15:14	
	22	15:32	15:59	
G. Package Operations in Bay 3 Level D	23	16:12	17:11	
	24	17:32	17:46	
	25	18:00	18:19	
	26	18:31	18:40	
	27	18:53	19:06	
H. Reposition Foot Restraint	28	19:21	19:49	
	29	20:19	20:46	
	30	21:03	21:14	
I. SAL Operations	31	21:26	22:11	
	32	22:36	22:49	
	33	23:01	23:29	
J. Reposition Foot Restraint	34	23:58	24:30	
	35	25:07	25:39	
K. T-003 Package Operations	36&37	26:16	26:32	
	38	26:53	27:17	
	39	27:34	28:11	
	40	28:29	29:24	
	41	29:37	30:14	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 2
TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:18	
	2	00:30	00:45	
B. Reposition Foot Restraint	3	01:15	01:37	
	4	01:49	01:53	
	5	02:54	02:59	
	6	03:40	03:59	
C. Package Operations in Bay 1	7&8	04:33	05:20	
	9&10	05:47	06:12	
	11	06:26	06:27	
D. Reposition Foot Restraint	12	06:43	07:29	
	13	07:50	08:13	
	14	08:37	09:35	
E. Package Operations in Bay 1A Level C	15	09:50	10:57	
	16	11:21	11:34	
	17	11:48	12:08	
	18	12:20	12:29	
	19	12:49	12:59	
F. Reposition Foot Restraint	20	13:12	13:44	
	21	14:07	14:42	
	22	15:02	15:26	
G. Package Operations in Bay 3 Level D	23	15:42	16:21	
	24	16:47	16:59	
	25	17:15	17:24	
	26	17:38	17:45	
	27	18:46	18:54	
H. Reposition Foot Restraint	28	19:07	19:25	
	29	19:48	20:28	
	30	20:47	21:03	
I. SAL Operations	31	21:17	21:55	
	32	22:17	22:36	
	33	22:48	23:05	
J. Reposition Foot Restraint	34	23:31	23:53	
	35	24:19	24:52	
K. T-003 Package Operations	36&37	25:20	25:45	
	38	26:11	26:45	
	39	27:04	27:47	
	40	28:05	29:40	
	41	29:55	31:15	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 2
TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	01:02	
	2	01:19	02:07	
B. Reposition Foot Restraint	3	02:33	03:25	
	4	03:42	03:57	
	5	04:19	04:50	
	6	05:06	05:48	
C. Package Operations in Bay 1	7&8	06:22	07:23	
	9&10	07:55	08:37	
	11	08:49	09:00	
D. Reposition Foot Restraint	12	09:12	10:20	
	13	10:41	11:24	
	14	11:45	12:41	
E. Package Operations in Bay 1A Level C	15	12:54	14:19	
	16	14:47	15:12	
	17	15:35	15:58	
	18	16:14	16:25	
	19	16:42	16:58	
F. Reposition Foot Restraint	20	17:11	17:58	
	21	18:25	19:20	
	22	19:40	20:22	
G. Package Operations in Bay 3 Level D	23	20:37	21:28	
	24	23:28	23:42	
	25	23:56	24:18	
	26	24:33	24:48	
	27	25:02	25:22	
H. Reposition Foot Restraint	28	25:35	26:20	
	29	26:41	27:22	
	30	27:41	28:01	
I. SAL Operations	31	28:17	28:53	
	32	29:15	29:30	
	33	29:42	20:45	
J. Reposition Foot Restraint	34	31:06	31:33	
	35	31:55	33:07	
K. T-003 Package Operations	36&37	33:32	34:04	
	38	34:28	34:57	
	39	35:15	36:10	
	40	36:27	37:39	
	41	38:00	39:04	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 2
TRAIL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:18	
	2	00:25	00:35	
B. Reposition Foot Restraint	3	01:05	01:15	
	4	01:26	01:36	
	5	01:54	02:04	
	6	02:16	02:24	
C. Package Operations in Bay 1	7&8	02:56	03:41	
	9&10	04:05	04:23	
	11	04:33	04:39	
D. Reposition Foot Restraint	12	04:50	05:26	
	13	05:43	05:53	
	14	06:10	06:46	
E. Package Operations in Bay 1A Level C	15	06:57	08:01	
	16	08:28	08:38	
	17	09:43	09:04	
	18	09:16	09:22	
	19	09:38	09:45	
F. Reposition Foot Restraint	20	09:55	10:22	
	21	10:41	11:01	
	22	11:19	11:42	
G. Package Operations in Bay 3 Level D	23	11:55	12:24	
	24	12:49	13:02	
	25	13:14	13:31	
	26	13:42	13:49	
	27	14:00	14:06	
H. Reposition Foot Restraint	28	14:55	15:17	
	29	15:34	16:01	
	30	16:15	16:21	
I. SAL Operations	31	16:33	17:51	
	32	19:11	19:27	
	33	19:37	19:57	
J. Reposition Foot Restraint	34	20:17	20:36	
	35	20:57	21:24	
K. T-003 Package Operations	36&37	21:56	22:09	
	38	22:31	22:56	
	39	23:10	23:37	
	40	23:51	24:30	
	41	24:42	25:43	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 2
TRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:25	
	2	00:46	01:06	
B. Reposition Foot Restraint	3	01:47	01:59	
	4	02:13	02:20	
	5	03:00	03:27	
	6	03:43	03:52	
C. Package Operations in Bay 1	7&8	04:24	05:04	
	9&10	05:21	05:44	
	11	06:19	06:26	
D. Reposition Foot Restraint	12	06:36	07:19	
	13	07:39	08:08	
	14	08:28	09:09	
E. Package Operations in Bay 1A Level C	15	09:23	09:53	
	16	10:07	10:21	
	17	10:35	11:00	
	18	11:16	11:28	
	19	11:48	11:54	
F. Reposition Foot Restraint	20	12:07	12:41	
	21	13:04	13:39	
	22	14:00	14:30	
G. Package Operations in Bay 3 Level D	23	14:49	15:22	
	24	15:44	16:01	
	25	16:13	16:28	
	26	16:40	16:51	
	27	17:03	17:14	
H. Reposition Foot Restraint	28	17:27	17:48	
	29	18:08	18:48	
	30	19:10	20:03	
I. SAL Operations	31	20:16	20:32	
	32	20:52	21:18	
	33	21:36	21:52	
J. Reposition Foot Restraint	34	22:12	22:40	
	35	23:05	24:00	
K. T-003 Package Operations	36&37	25:20	25:42	
	38	26:01	26:19	
	39	26:35	27:15	
	40	27:32	28:36	
	41	28:48	29:14	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: ISUBJECT NO. 2
TRIAL NO. 6

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:24	
	2	01:12	01:28	
B. Reposition Foot Restraint	3	01:53	02:02	
	4	02:14	02:22	
	5	02:40	02:55	
	6	03:22	03:31	
C. Package Operations in Bay	7&8	04:00	04:36	
	9&10	05:04	05:26	
	11	05:39	05:44	
D. Reposition Foot Restraint	12	05:55	06:38	
	13	06:52	07:10	
	14	07:34	08:13	
E. Package Operations in Bay 1A Level C	15	08:26	09:25	
	16	09:48	10:01	
	17	10:18	10:40	
	18	10:54	11:02	
	19	11:19	11:27	
F. Reposition Foot Restraint	20	11:40	12:08	
	21	12:30	13:11	
	22	20:00	20:28	
G. Package Operations in Bay 3 Level D	23	20:42	21:33	
	24	21:54	22:05	
	25	22:17	22:37	
	26	22:49	22:58	
	27	23:20	23:29	
H. Reposition Foot Restraint	28	23:42	24:06	
	29	24:26	25:00	
	30	25:19	25:43	
I. SAL Operations	31	25:58	26:47	
	32	27:11	27:25	
	33	27:36	27:58	
J. Reposition Foot Restraint	34	28:17	29:08	
	35	29:31	30:30	
K. T-003 Package Operations	36&37	31:19	31:40	
	38	32:00	32:20	
	39	32:38	33:22	
	40	33:52	34:44	
	41	34:58	35:53	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1CONCEPT: ITRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1			
	2			
	3	00:00	00:16	
	4&5	00:28	00:49	
B. Reposition Foot Restraint	6	03:28	03:41	
	7	04:00	04:18	
	8	04:32	04:41	
C. M-487 Package Operations	9&10	05:01	05:28	
	11&12	05:28	06:18	
D. Reposition Foot Restraint	13	09:07	09:39	
	14	09:56	10:08	
E. Reposition Foot Restraint	15	10:47	11:21	
	16	11:33	11:46	
F. T-003 Package Operations	17&18	13:15	13:46	
	19	14:04	15:00	
	20	15:17	15:53	
	21	16:04	17:11	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: I

TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>	
		<u>START</u>	<u>END</u>
A. STS Panel Operations	1	00:00	00:14
	2	00:23	00:41
	3	00:55	01:10
	4&5	01:34	01:49
B. Reposition Foot Restraint	6	02:06	02:18
	7	02:32	02:46
	8	02:59	03:09
C. M-487 Package Operations	9&10	03:31	04:00
	11&12	04:17	04:38
D. Reposition Foot Restraint	13	04:47	05:14
	14	05:24	05:43
E. Reposition Foot Restraint	15	06:11	06:40
	16	07:46	07:55
F. T-003 Package Operations	17&18	09:53	10:24
	19	10:35	11:15
	20	11:28	12:13
	21	12:24	13:07

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: I

TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:13	
	2	00:21	00:44	
	3	00:52	01:08	
	4&5	02:06	02:19	
B. Reposition Foot Restraint	6	02:31	02:40	
	7	02:53	03:00	
	8	03:08	03:19	
C. M-487 Package Operations	9&10	03:42	04:09	
	11&12	04:19	04:42	
D. Reposition Foot Restraint	13	04:53	05:22	
	14	05:35	05:51	
E. Reposition Foot Restraint	15	06:11	06:36	
	16	06:44	06:50	
F. T-003 Package Operations	17&18	07:42	08:53	
	19	09:21	09:57	
	20	10:07	10:44	
	21	10:51	11:53	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: I

TRIAL NO. 4

	<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>	
			<u>START</u>	<u>END</u>
A.	STS Panel Operations	1	00:00	00:13
		2	00:21	00:40
		3	00:49	01:00
		4&5	01:22	01:40
B.	Reposition Foot Restraint	6	01:57	02:04
		7	02:22	02:32
		8	02:40	02:49
C.	M-487 Package Operations	9&10	03:14	03:43
		11&12	03:59	04:17
D.	Reposition Foot Restraint	13	04:27	04:54
		14	05:05	05:18
E.	Reposition Foot Restraint	15	06:05	06:20
		16	06:30	06:40
F.	T-003 Package Operations	17&18	07:03	07:34
		19	07:47	08:44
		20	08:58	09:33
		21	09:43	10:40

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: 1

TRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:14	
	2	00:25	00:39	
	3	00:49	01:00	
	4&5	01:16	01:32	
B. Reposition Foot Restraint	6	01:42	01:49	
	7	02:03	02:11	
	8	02:17	02:27	
C. M-487 Package Operations	9&10	02:47	03:20	
	11&12	03:30	03:49	
D. Reposition Foot Restraint	13	03:58	04:24	
	14	04:44	04:56	
E. Reposition Foot Restraint	15	05:20	05:31	
	16	05:40	04:47	
F. T-003 Package Operations	17&18	06:01	06:28	
	19	06:38	07:15	
	20	07:26	08:10	
	21	08:19	08:48	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: I

TRIAL NO. 6

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:11	
	2	00:18	00:30	
	3	00:38	00:51	
	4&5	01:07	01:20	
B. Reposition Foot Restraint	6	01:51	02:04	
	7	02:15	02:19	
	8	02:28	02:34	
C. M-487 Package Operations	9&10	02:51	03:19	
	11&12	03:29	03:50	
D. Reposition Foot Restraint	13	04:01	04:25	
	14	04:37	04:49	
E. Reposition Foot Restraint	15	05:12	05:23	
	16	05:31	05:39	
F. T-003 Package Operations	17&18	05:55	06:15	
	19	06:25	06:56	
	20	07:15	08:04	
	21	08:12	08:39	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: I

TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:32	
	2	00:45	00:56	
	3	01:19	01:36	
	4&5	03:45	04:20	
B. Reposition Foot Restraint	6	04:40	04:41	
	7	04:59	05:12	
	8	05:24	05:34	
C. M-487 Package Operations	9&10	06:07	07:00	
	11&12	07:48	08:25	
D. Reposition Foot Restraint	13	08:39	09:46	
	14	10:04	10:24	
E. Reposition Foot Restraint	15	10:54	11:17	
	16	11:26	11:45	
F. T-003 Package Operations	17&18	13:44	14:12	
	19	14:25	15:00	
	20	15:14	17:30	
	21	17:44	18:02	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: I

TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:27	
	2	00:37	00:49	
	3	01:02	01:14	
	4&5	02:21	02:44	
B. Reposition Foot Restraint	6	02:56	03:06	
	7	03:25	03:44	
	8	03:53	04:04	
C. M-487 Package Operations	9&10	04:25	05:44	
	11&12	05:58	06:21	
D. Reposition Foot Restraint	13	06:30	07:38	
	14	07:47	08:01	
E. Reposition Foot Restraint	15	08:25	08:48	
	16	08:58	09:10	
F. T-003 Package Operations	17&18	09:30	10:11	
	19	10:23	11:03	
	20	11:20	12:25	
	21	12:35	16:13	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: I

TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:40	
	2	00:51	01:08	
	3	01:23	01:37	
	4&5	02:01	02:22	
B. Reposition Foot Restraint	6	02:40	02:45	
	7	03:01	03:23	
	8	03:37	03:47	
C. M-487 Package Operations	9&10	04:19	05:14	
	11&12	05:40	06:05	
D. Reposition Foot Restraint	13	06:17	07:10	
	14	07:24	07:54	
E. Reposition Foot Restraint	15	08:18	08:32	
	16	08:44	08:53	
F. T-003 Package Operations	17&18	15:00	15:36	
	19	15:53	16:26	
	20	16:42	17:20	
	21	17:33	18:54	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: I

TRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:19	
	2	00:29	00:45	
	3	00:57	01:09	
	4&5	01:33	01:56	
B. Reposition Foot Restraint	6	02:10	02:18	
	7	02:34	02:57	
	8	03:09	03:24	
C. M-487 Package Operations	9&10	03:47	04:48	
	11&12	05:01	05:23	
D. Reposition Foot Restraint	13	05:31	06:27	
	14	06:43	07:04	
E. Reposition Foot Restraint	15	07:26	07:43	
	16	07:52	08:06	
F. T-003 Package Operations	17&18	08:26	08:56	
	19	09:08	09:38	
	20	09:51	10:39	
	21	10:48	11:21	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: I

TRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:24	
	2	00:31	00:54	
	3	02:40	03:18	
	4&5	03:40	03:59	
B. Reposition Foot Restraint	6	04:10	04:19	
	7	04:28	04:41	
	8	04:48	05:00	
C. M-487 Package Operations	9&10	05:15	06:03	
	11&12	06:15	06:38	
D. Reposition Foot Restraint	13	06:45	07:30	
	14	07:41	07:50	
E. Reposition Foot Restraint	15	08:42	08:58	
	16	09:10	09:27	
F. T-003 Package Operations	17&18	09:46	10:14	
	19	10:25	11:05	
	20	11:22	11:59	
	21	12:10	12:41	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: IISUBJECT NO. 1
TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:23	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	01:23	01:32	
	6			
C. Package Operations in Bay 1	7&8	03:53	04:12	
	9&10	04:30	05:00	
	11			
D. Reposition Foot Restraint	12	05:18	05:59	
	13			
	14	06:15	06:24	
E. Package Operations in Bay 1A Level C	15			
	16			
	17	06:37	06:56	
	18	07:08	07:23	
	19	07:47	08:01	
F. Reposition Foot Restraint	20	08:12	08:46	
	21			
	22	09:15	09:23	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	09:33	10:03	
	26	10:14	10:25	
	27	10:35	10:52	
H. Reposition Foot Restraint	28	11:02	11:52	
	29			
	30	12:24	12:34	
I. SAL Operations	31			
	32			
	33			
J. Reposition Foot Restraint	34			
	35	12:52	13:12	
K. T-003 Package Operations	36&37			
	38	13:24	13:45	
	39	14:02	14:30	
	40	14:42	15:22	
	41	15:32	16:16	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: IISUBJECT NO. 1
TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:10	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	01:09	01:19	
C. Package Operations in Bay 1	6			
	7&8	01:38	01:59	
	9&10	02:18	02:36	
D. Reposition Foot Restraint	11			
	12	02:48	03:38	
	13			
E. Package Operations in Bay 1A Level C	14	03:48	03:55	
	15			
	16			
F. Reposition Foot Restraint	17	04:03	04:21	
	18	04:30	04:40	
	19	04:51	05:01	
G. Package Operations in Bay 3 Level D	20	05:09	05:38	
	21			
	22	05:48	05:55	
H. Reposition Foot Restraint	23			
	24			
	25	06:04	06:22	
I. SAL Operations	26	06:31	06:43	
	27	06:52	07:04	
	28	07:15	07:39	
J. Reposition Foot Restraint	29			
	30	08:34	08:44	
	31			
K. T-003 Package Operations	32			
	33			
	34			
J. Reposition Foot Restraint	35	09:04	09:16	
	36&37			
K. T-003 Package Operations	38	09:25	09:43	
	39	09:56	10:29	
	40	10:41	11:15	
	41	11:26	12:10	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: IISUBJECT NO. 1
TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:14	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:28	00:39	
	6			
C. Package Operations in Bay 1	7&8	01:01	01:28	
	9&10	01:43	02:00	
	11			
D. Reposition Foot Restraint	12	02:10	02:49	
	13			
	14	03:18	03:26	
E. Package Operations in Bay 1A Level C	15			
	16			
	17	03:36	03:52	
	18	04:00	04:12	
	19	04:24	04:37	
F. Reposition Foot Restraint	20	04:46	05:21	
	21			
	22	05:32	05:39	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	05:48	06:04	
	26	06:14	06:26	
	27	06:35	06:46	
H. Reposition Foot Restraint	28	06:55	07:23	
	29			
	30	07:43	07:53	
I. SAL Operations	31			
	32			
	33			
J. Reposition Foot Restraint	34			
	35	08:07	08:24	
K. T-003 Package Operations	36&37			
	38	08:32	08:47	
	39	08:58	09:31	
	40	09:43	10:22	
	41	10:30	11:14	

TIME DATA SHEET

MODE: Shirtsleeve
CONCEPT: II

SUBJECT NO. 1
TRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:14	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	02:20	02:28	
	6			
C. Package Operations in Bay 1	7&8	02:38	02:55	
	9&10	03:09	03:25	
	11			
D. Reposition Foot Restraint	12	03:35	04:09	
	13			
	14	04:27	04:34	
E. Package Operations in Bay 1A Level C	15			
	16			
	17	04:47	05:13	
	18	05:22	05:31	
	19	05:50	06:01	
F. Reposition Foot Restraint	20	06:18	06:47	
	21			
	22	06:56	07:06	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	07:15	07:31	
	26	07:39	07:51	
	27	08:02	08:13	
H. Reposition Foot Restraint	28	08:28	09:02	
	29			
	30	09:13	09:25	
I. SAL Operations	31			
	32			
	33			
J. Reposition Foot Restraint	34			
	35	09:38	09:58	
K. T-003 Package Operations	36&37			
	38	10:09	10:29	
	39	10:41	11:21	
	40	11:33	12:02	
	41	12:12	12:41	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: IISUBJECT NO. 1
TRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:11	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:19	00:25	
	6			
C. Package Operations in Bay 1	7&8	00:36	00:52	
	9&10	01:06	01:22	
	11			
D. Reposition Foot Restraint	12	01:30	02:19	
	13			
	14	02:31	02:38	
E. Package Operations in Bay 1A Level C	15			
	16			
	17	02:46	03:07	
	18	03:18	03:27	
	19	03:43	03:54	
F. Reposition Foot Restraint	20	04:03	04:32	
	21			
	22	04:42	04:51	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	05:00	05:11	
	26	05:23	05:35	
	27	05:45	06:01	
H. Reposition Foot Restraint	28	06:09	06:46	
	29			
	30	06:58	07:06	
I. SAL Operations	31			
	32			
	33			
J. Reposition Foot Restraint	34			
	35	07:09	07:33	
K. T-003 Package Operations	36&37			
	38	07:42	07:56	
	39	08:10	08:41	
	40	08:52	09:32	
	41	09:40	10:10	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: IISUBJECT NO. 2
TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:25	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:49	01:25	
	6			
C. Package Operations in Bay 1	7&8	02:15	02:38	
	9&10	02:48	03:40	
	11			
D. Reposition Foot Restraint	12	03:58	04:16	
	13			
	14	04:28	04:32	
E. Package Operations in Bay 1A Level C	15			
	16			
	17	05:00	05:14	Subject used handheld as foot restraint while replacing package
	18	05:31	05:41	
	19	05:50	06:24	
F. Reposition Foot Restraint	20	06:36	06:46	
	21			
	22	06:59	07:24	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	07:36	07:50	
	26	08:03	08:11	
	27	08:19	09:10	
H. Reposition Foot Restraint	28	09:21	09:31	
	29			
	30	09:52	10:10	
I. SAL Operations	31			
	32			
	33			
J. Reposition Foot Restraint	34			
	35	10:22	10:45	
K. T-003 Package Operations	36&37			
	38	10:59	11:26	
	39	11:38	12:17	
	40	12:27	13:15	
	41			

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: IISUBJECT NO. 2
TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	12:58	13:19	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	13:28	13:37	
	6			
C. Package Operations in Bay 1	7&8	13:50	14:15	
	9&10	17:11	17:30	
	11			
D. Reposition Foot Restraint	12	17:39	18:22	
	13			
	14	19:09	19:15	
E. Package Operations in Bay 1A Level C	15			
	16			
	17	19:25	19:59	
	18	20:49	29:55	
	19	21:09	21:15	
F. Reposition Foot Restraint	20	21:23	22:01	
	21			
	22	25:24	25:33	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	26:00	26:24	
	26	26:36	26:49	
	27	27:02	27:10	
H. Reposition Foot Restraint	28	27:20	28:02	
	29			
	30	28:50	29:03	
I. SAL Operations	31			
	32			
	33			
J. Reposition Foot Restraint	34			
	35	29:22	29:49	
K. T-003 Package Operations	36&37			
	38	30:00	30:27	
	39	30:41	31:18	
	40	31:28	32:02	
	41	32:13	33:08	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: IISUBJECT NO. 2
TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:18	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:28	00:34	
C. Package Operations in Bay 1	6			
	7&8	00:46	01:08	
	9&10	01:23	01:34	
D. Reposition Foot Restraint	11			
	12	01:44	02:14	
	13			
E. Package Operations in Bay 1A Level C	14	02:26	02:30	
	15			
	16			
F. Reposition Foot Restraint	17	02:42	03:01	
	18	03:12	03:18	
	19	03:32	03:39	
G. Package Operations in Bay 3 Level D	20	03:48	04:20	
	21			
	22	04:31	04:36	
H. Reposition Foot Restraint	23			
	24			
	25	04:46	05:02	
I. SAL Operations	26	05:12	05:18	
	27	05:28	05:34	
	28	05:43	06:13	
J. Reposition Foot Restraint	29			
	30	06:23	06:30	
	31			
K. T-003 Package Operations	32			
	33			
	34			
J. Reposition Foot Restraint	35	06:45	06:58	
	36&37			
K. T-003 Package Operations	38	07:09	07:30	
	39	07:46	08:06	
	40	08:17	08:52	
	41	09:03	09:49	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: IISUBJECT NO. 2
TRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:16	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:25	00:31	
	6			
C. Package Operations in Bay 1	7&8	00:43	01:15	
	9&10	01:31	01:46	
	11			
D. Reposition Foot Restraint	12	01:55	02:52	
	13			
	14	03:04	03:17	
E. Package Operations in Bay 1A Level C	15			
	16			
	17	03:21	03:40	
	18	04:36	04:42	
	19	04:55	05:05	
F. Reposition Foot Restraint	20	05:13	05:49	
	21			
	22	06:03	06:09	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	06:20	06:34	
	26	06:45	06:54	
	27	07:04	07:14	
H. Reposition Foot Restraint	28	07:24	08:00	
	29			
	30	08:14	08:21	
I. SAL Operations	31			
	32			
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37			
	38	09:03	09:22	
	39	09:35	10:02	
	40	10:13	10:43	
	41	10:54	10:29	

TIME DATA SHEETMODE: Shirtsleeve
CONCEPT: IISUBJECT NO. 2
TRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:13	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:24	00:31	
	6			
C. Package Operations in Bay 1	7&8	00:44	01:00	
	9&10	01:18	01:32	
	11			
D. Reposition Foot Restraint	12	01:41	02:15	
	13			
	14	02:30	02:37	
E. Package Operations in Bay 1A Level C	15			
	16			
	17	02:44	03:07	
	18	03:21	03:30	
	19	03:56	04:09	
F. Reposition Foot Restraint	20	04:18	04:50	
	21			
	22	05:08	05:15	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	05:24	05:41	
	26	05:50	06:01	
	27	06:10	06:18	
H. Reposition Foot Restraint	28	06:37	07:09	
	29			
	30	07:18	07:29	
I. SAL Operations	31			
	32			
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37			
	38	08:05	08:23	
	39	08:35	08:58	
	40	09:07	09:35	
	41	09:44	10:41	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: II

TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:13	
	2			
	3			
	4&5	00:46	00:54	
B. Reposition Foot Restraint	6			
	7			
	8	01:05	02:02	
C. M-487 Package Operations	9&10	02:54	03:09	
	11&12	03:19	04:29	
D. Reposition Foot Restraint	13			
	14	04:46	04:55	
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	05:03	03:32	
	19	05:50	06:21	
	20	06:31	07:10	
	21	07:19	08:45	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: II

TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:18	
	2			
	3			
	4&5.	00:29	00:37	
B. Reposition Foot Restraint	6			
	7			
	8	00:52	01:23	
C. M-487 Package Operations	9&10	01:38	01:53	
	11&12	02:02	02:45	
D. Reposition Foot Restraint	13			
	14	02:59	03:16	
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	03:24	03:54	
	19	04:08	04:34	
	20	04:45	05:22	
	21	05:32	06:16	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: II

TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:13	
	2			
	3			
	4&5	00:24	00:33	
B. Reposition Foot Restraint	6			
	7			
	8	00:43	01:06	
C. M-487 Package Operations	9&10	01:20	01:35	
	11&12	01:45	02:21	
D. Reposition Foot Restraint	13			
	14	02:37	02:50	
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	03:06	03:28	
	19	03:40	04:04	
	20	04:14	04:43	
	21	04:52	05:35	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: II

TRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:12	
	2			
	3			
	4&5	00:23	00:30	
B. Reposition Foot Restraint	6			
	7			
	8	00:43	01:03	
C. M-487 Package Operations	9&10	01:07	01:32	
	11&12	01:42	02:11	
D. Reposition Foot Restraint	13			
	14	02:26	02:35	
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	02:44	03:02	
	19	03:14	03:41	
	20	03:51	04:16	
	21	04:25	05:09	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: II

TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:21	
	2			
	3			
	4&5	00:38	00:46	
B. Reposition Foot Restraint	6			
	7			
	8	01:14	01:27	
C. M-487 Package Operations	9&10	01:50	02:04	
	11&12	02:19	03:07	
D. Reposition Foot Restraint	13			
	14	03:24	03:35	
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	03:48	04:13	
	19	04:27	05:10	
	20	05:24	06:03	
	21	06:12	07:11	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2CONCEPT: IITRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:15	
	2			
	3			
	4&5	00:27	00:35	
B. Reposition Foot Restraint	6			
	7			
	8	00:45	01:04	
C. M-487 Package Operations	9&10	01:18	01:34	
	11&12	01:44	02:25	
D. Reposition Foot Restraint	13			
	14	02:38	02:56	
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	03:05	01:27	
	19	03:39	04:10	
	20	04:19	04:29	
	21	05:10	06:09	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: II

TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:15	
	2			
	3			
	4&5	00:26	00:35	
B. Reposition Foot Restraint	6			
	7			
	8	00:49	01:02	
C. M-487 Package Operations.	9&10	01:19	01:34	
	11&12	01:45	02:25	
D. Reposition Foot Restraint	13			
	14	02:40	02:58	
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	03:08	03:35	
	19	03:48	04:22	
	20	04:41	05:15	
	21	05:29	06:25	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: II

TRIAL NO. 4

<u>TASK</u>	<u>ELE-MENI</u>	<u>TIME</u>	<u>COMMENTS</u>
	<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:21
	2		
	3		
	4&5	02:30	02:38
B. Reposition Foot Restraint	6		
	7		
	8	02:52	03:13
C. M-487 Package Operations	9&10	03:26	03:42
	11&12	03:51	04:27
D. Reposition Foot Restraint	13		
	14	04:41	04:27
E. Reposition Foot Restraint	15		
	16		
F. T-003 Package Operations	17&18	05:26	05:56
	19	06:28	06:59
	20	07:15	07:54
	21	08:05	08:55

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 1CONCEPT: IIITRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:11	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:39	00:45	
C. Package Operations in Bay 1	6			
	7&8	00:57	01:20	
	9&10	02:11	02:28	
D. Reposition Foot Restraint	11			
	12	02:37	03:15	
	13			
E. Package Operations in Bay 1A Level C	14	03:28	03:33	
	15			
	16	03:44	03:52	
F. Reposition Foot Restraint	17	04:04	04:27	
	18	04:37	04:52	
	19	05:05	05:18	
G. Package Operations in Bay 3 Level D	20	05:28	06:01	
	21			
	22	06:14	06:25	
H. Reposition Foot Restraint	23			
	24			
	25	06:37	06:51	
I. SAL Operations	26	07:00	07:12	
	27	07:22	07:33	
	28			
J. Reposition Foot Restraint	29	07:42	08:18	
	30	08:28	08:34	
	31			
K. T-003 Package Operations	32			
	33	08:52	09:02	
	34			
	35			
	36&37	09:16	09:28	
	38	09:37	09:52	
	39	10:04	10:36	
	40	10:49	11:35	
	41	11:43	12:20	

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 1CONCEPT: IIITRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:12	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:23	00:30	
	6			
C. Package Operations in Bay 1	7&8	00:41	01:01	
	9&10	01:19	01:33	
	11			
D. Reposition Foot Restraint	12	01:41	02:14	
	13			
	14	02:24	02:30	
E. Package Operations in Bay 1A Level C	15			
	16	02:38	02:44	
	17	03:02	03:25	
	18	03:37	03:50	
	19	04:06	04:22	
F. Reposition Foot Restraint	20	04:30	05:10	
	21			
	22	05:22	05:31	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	05:40	06:06	
	26	01:17	06:28	
	27	06:37	06:48	
H. Reposition Foot Restraint	28	06:56	07:36	
	29	07:46	07:53	
	30			
I. SAL Operations	31			
	32			
	33	08:02	08:16	
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	08:30	08:43	
	38	08:57	09:15	
	39	09:38	10:09	
	40	10:10	10:56	
	41	11:09	11:52	

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 1CONCEPT: IIITRAIL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:10	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:18	00:25	
	6			
C. Package Operations in Bay 1	7&8	00:36	00:58	
	9&10	01:14	01:30	
	11			
D. Reposition Foot Restraint	12	01:39	02:16	
	13			
	14	02:29	02:37	
E. Package Operations in Bay 1A Level C	15			
	16	02:45	02:49	
	17	03:25	03:42	
	18	03:52	04:05	
	19	04:18	04:33	
F. Reposition Foot Restraint	20	04:43	05:26	
	21			
	22	05:37	05:47	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	06:10	06:30	
	26	06:42	06:53	
	27	07:04	07:16	
H. Reposition Foot Restraint	28	07:24	07:54	
	29	08:04	08:13	
	30			
I. SAL Operations	31			
	32			
	33	08:21	08:34	
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	08:47	09:00	
	38	09:09	09:26	
	39	09:38	10:10	
	40	10:20	10:57	
	41	11:07	11:36	

TIME DATA SHEETMODE: Shirtsleeve SUBJECT NO. 1CONCEPT: III TRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:09	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:19	00:25	
	6			
C. Package Operations in Bay 1	7&8	00:36	00:49	
	9&10	01:04	01:22	
	11			
D. Reposition Foot Restraint	12	01:33	02:08	
	13			
	14	02:41	02:46	
E. Package Operations in Bay 1A Level C	15			
	16	02:54	02:58	
	17	03:07	03:21	
	18	03:29	03:41	
	19	03:54	04:07	
F. Reposition Foot Restraint	20	04:15	04:56	
	21			
	22	05:07	05:18	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	05:27	05:44	
	26	05:52	06:03	
	27	06:13	06:26	
H. Reposition Foot Restraint	28	06:34	07:06	
	29	07:17	07:23	
	30			
I. SAL Operations	31			
	32			
	33	07:31	07:43	
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	07:55	08:08	
	38	08:17	08:33	
	39	08:44	09:19	
	40	09:22	10:01	
	41	10:08	10:41	

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 2CONCEPT: IIITRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>	<u>COMMENTS</u>
	<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:21
	2		
B. Reposition Foot Restraint	3		
	4		
	5	00:29	00:36
	6		
C. Package Operations in Bay 1	7&8	00:47	01:13
	9&10	01:28	01:55
	11		
D. Reposition Foot Restraint	12	02:03	02:47
	13		
	14	02:58	03:11
E. Package Operations in Bay 1A Level C	15		
	16	03:22	03:28
	17	03:48	04:12
	18	04:28	04:37
	19	04:49	04:58
F. Reposition Foot Restraint	20	05:07	05:34
	21		
	22	05:45	05:58
G. Package Operations in Bay 3 Level D	23		
	24		
	25	06:09	06:28
	26	06:38	06:47
	27	06:57	07:09
H. Reposition Foot Restraint	28	07:19	07:53
	29	08:05	08:16
	30		
I. SAL Operations	31		
	32		
	33	08:40	09:13
J. Reposition Foot Restraint	34		
	35		
K. T-003 Package Operations	36&37	09:33	09:57
	38	10:05	10:26
	39	10:42	11:18
	40	11:33	12:10
	41	12:17	13:04

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 2CONCEPT: IIITRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:23	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:35	00:46	
	6			
C. Package Operations in Bay 1	7&8	00:57	01:31	
	9&10	01:49	02:13	
	11			
D. Reposition Foot Restraint	12	02:23	02:57	
	13			
	14	03:08	03:20	
E. Package Operations in Bay 1A Level C	15			
	16	03:28	03:35	
	17	03:44	04:09	
	18	04:20	04:28	
	19	04:40	04:53	
F. Reposition Foot Restraint	20	05:37	06:08	
	21			
	22	06:22	06:35	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	06:45	07:04	
	26	07:18	07:27	
	27	07:36	07:50	
H. Reposition Foot Restraint	28	07:59	08:33	
	29	08:44	08:52	
	30			
I. SAL Operations	31			
	32			
	33	09:01	09:17	
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	09:38	10:00	
	38	10:19	10:44	
	39	10:57	11:23	
	40	11:34	12:08	
	41	12:17	12:57	

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 2CONCEPT: IIITRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:23	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:33	00:40	
	6			
C. Package Operations in Bay 1	7&8	00:53	01:20	
	9&10	01:36	01:53	
	11			
D. Reposition Foot Restraint	12	02:00	02:29	
	13			
	14	02:40	02:52	
E. Package Operations in Bay 1A Level C	15			
	16	03:03	03:08	
	17	03:19	03:41	
	18	03:49	03:57	
	19	04:09	04:17	
F. Reposition Foot Restraint	20	04:27	04:52	
	21			
	22	05:03	05:13	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	05:23	05:39	
	26	05:50	05:58	
	27	06:07	06:16	
H. Reposition Foot Restraint	28	06:27	06:58	
	29	07:08	07:16	
	30			
I. SAL Operations	31			
	32			
	33	07:24	07:41	
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	07:55	08:06	
	38	08:14	08:34	
	39	08:47	09:08	
	40	09:18	09:50	
	41	09:50	10:32	

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 2CONCEPT: IIITRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:24	
	2			
B. Reposition Foot Restraint	3			
	4			
	5	00:33	00:41	
	6			
C. Package Operations in Bay 1	7&8	00:52	01:17	
	9&10	01:33	01:42	
	11			
D. Reposition Foot Restraint	12	02:41	03:15	
	13			
	14	03:58	04:11	
E. Package Operations in Bay 1A Level C	15			
	16	04:19	04:24	
	17	04:32	04:56	
	18	05:05	05:11	
	19	05:23	05:30	
F. Reposition Foot Restraint	20	05:38	06:04	
	21			
	22	06:15	06:26	
G. Package Operations in Bay 3 Level D	23			
	24			
	25	06:37	06:53	
	26	07:06	07:13	
	27	07:22	07:29	
H. Reposition Foot Restraint	28	07:37	08:10	
	29	08:20	08:28	
	30			
I. SAL Operations	31			
	32			
	33	08:25	08:54	
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	09:07	09:22	
	38	09:35	09:57	
	39	10:11	10:35	
	40	10:48	11:27	
	41	11:34	12:09	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: III

TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:11	
	2			
	3			
	4&5	01:23	01:34	
B. Reposition Foot Restraint	6			
	7			
	8	01:46	02:08	
C. M-487 Package Operations	9&10	02:25	02:42	
	11&12	02:50	02:37	
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15	03:45	03:54	
	16			
F. T-003 Package Operations	17&18	04:02	04:22	
	19	05:17	05:46	
	20	05:57	06:35	
	21	06:45	07:52	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: III

TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:11	
	2			
	3			
	4&5	00:21	00:28	
B. Reposition Foot Restraint	6			
	7			
	8	00:36	00:55	
C. M-487 Package Operations	9&10	01:06	01:22	
	11&12	01:30	02:30	
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15	03:00	03:07	
	16			
F. T-003 Package Operations	17&18	03:14	03:38	
	19	03:49	04:26	
	20	04:35	05:10	
	21	05:18	05:48	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: III

TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>	
		<u>START</u>	<u>END</u>
A. STS Panel Operations	1	00:00	00:10
	2		
	3		
	4&5	00:21	00:26
B. Reposition Foot Restraint	6		
	7		
	8	00:34	00:55
C. M-487 Package Operations	9&10	01:05	01:12
	11&12	01:26	02:04
D. Reposition Foot Restraint	13	-	
	14		
E. Reposition Foot Restraint	15	02:28	02:36
	16		
F. T-003 Package Operations	17&18	02:43	02:56
	19	03:08	03:37
	20	03:48	04:26
	21	04:34	05:04

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1CONCEPT: IIITRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>	<u>COMMENTS</u>
		<u>START</u>	<u>END</u>
A. STS Panel Operations	1	00:00	00:22
	2		
	3		
	4&5	00:32	00:38
B. Reposition Foot Restraint	6		
	7		
	8	00:46	01:01
C. M-487 Package Operations	9&10	01:11	01:28
	11&12	01:36	02:06
D. Reposition Foot Restraint	13		
	14		
E. Reposition Foot Restraint	15	02:34	02:40
	16		
F. T-003 Package Operations	17&18	02:50	03:04
	19	03:16	03:50
	20	03:52	04:42
	21	04:51	05:53

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: III

TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:36	
	2			
	3			
	4&5			
B. Reposition Foot Restraint	6	02:18	02:52	
	7			
	8	01:42	02:06	
C. M-487 Package Operations	9&10	02:18	02:52	
	11&12	03:01	03:50	
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15	04:05	04:19	
	16			
F. T-003 Package Operations	17&18	04:28	04:49	
	19	05:2 8	06:06	
	20	06:17	07:12	
	21	07:21	07:56	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2CONCEPT: IIITRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:23	
	2			
	3			
	4&5	00:34	00:43	
B. Reposition Foot Restraint	6			
	7			
	8	00:52	01:20	
C. M-487 Package Operations	9&10	01:32	01:48	
	11&12	01:56	02:41	
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15	02:55	03:09	
	16			
F. T-003 Package Operations	17&18	03:16	03:36	
	19	03:46	04:25	
	20	04:34	05:11	
	21	05:18	05:54	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: III

TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:29	
	2			
	3			
	4&5	00:39	00:49	
B. Reposition Foot Restraint	6			
	7			
	8	00:58	01:25	
C. M-487 Package Operations	9&10	01:37	01:42	
	11&12	01:52	02:33	
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15	02:45	02:53	
	16			
F. T-003 Package Operations	17&18	03:02	03:16	
	19	03:29	03:56	
	20	04:06	04:32	
	21	04:40	05:24	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: III

TRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>	<u>COMMENTS</u>
		<u>START</u>	<u>END</u>
A. STS Panel Operations	1	00:00	00:31
	2		
	3		
	4&5	00:42	00:52
B. Reposition Foot Restraint	6		
	7		
	8	00:59	01:24
C. M-487 Package Operations	9&10	01:47	02:04
	11&12	02:10	02:58
D. Reposition Foot Restraint	13		
	14		
E. Reposition Foot Restraint	15	03:13	03:22
	16		
F. T-003 Package Operations	17&18	03:50	04:12
	19	04:23	04:48
	20	04:57	05:28
	21	05:35	06:12

TIME DATA SHEET

MODE: Shirtsleeve SUBJECT NO. 1
CONCEPT: IV TRIAL NO. 1

	<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
			<u>START</u>	<u>END</u>	
A.	STS Panel Operations	1	00:00	00:12	
		2	00:22	00:33	
B.	Reposition Foot Restraint	3			
		4			
		5	06:13	06:24	
		6			
C.	Package Operations in Bay 1	7&8	06:46	07:23	
		9&10	07:41	07:58	
		11			
D.	Reposition Foot Restraint	12	08:29	09:27	
		13			
		14			Test Halted to reposition MRFR
E.	Package Operations in Bay 1A Level C	15	27:04	27:14	
		16	27:26	27:56	
		17	28:24	28:31	
		18	28:44	28:51	
		19	29:00	29:51	
F.	Reposition Foot Restraint	20			
		21			
		22			
G.	Package Operations in Bay 3 Level D	23	31:59	32:09	
		24	32:18	32:44	
		25	33:01	33:13	
		26	33:22	33:36	
		27	33:44	34:13	
H.	Reposition Foot Restraint	28			
		29			
		30			
I.	SAL Operations	31	34:53	35:04	
		32	35:13	35:29	
		33			
J.	Reposition Foot Restraint	34			
		35			
K.	T-003 Package Operations	36&37	39:48	40:24	
		38	40:40	41:41	
		39	41:55	42:38	
		40	42:48	43:18	
		41			

TIME DATA SHEETMODE: Shirtsleeve SUBJECT NO. 1CONCEPT: IV TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:11	
	2	00:18	00:32	
B. Reposition Foot Restraint	3			
	4			
	5	02:52	03:03	
	6			
C. Package Operations in Bay 1	7&8	03:20	03:39	
	9&10	03:56	04:13	
	11			
D. Reposition Foot Restraint	12	04:17	04:32	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	06:28	06:36	
	16	06:45	06:57	
	17	07:06	07:16	
	18	07:30	07:38	
	19	07:46	08:18	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	10:00	10:09	
	24	10:22	10:37	
	25	10:46	10:57	
	26	11:10	11:21	
	27	11:28	11:53	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	12:19	12:31	
	32	12:39	12:54	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	15:37	16:08	
	38	16:20	17:26	
	39	17:39	18:19	
	40	18:27	19:03	
	41			

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 1CONCEPT: IVTRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:01	00:13	Reach measurements - 83" 45° left, -83" forward, 87" 45° right
	2	00:20	00:30	
B. Reposition Foot Restraint	3			
	4			
	5	04:04	04:10	
	6			
C. Package Operations in Bay 1	7&8	04:21	04:40	
	9&10	04:54	05:11	
	11			
D. Reposition Foot Restraint	12	05:24	05:55	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	07:14	07:22	
	16	07:59	08:15	
	17	09:14	09:23	
	18	09:32	09:43	
	19	09:50	10:20	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	11:36	11:47	
	24	12:09	12:25	
	25	12:34	12:44	
	26	12:54	13:06	
	27	13:12	13:50	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	14:59	15:06	
	32	15:13	15:34	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	17:22	17:50	
	38	18:00	18:37	
	39	18:54	19:36	
	40	19:41	20:24	
	41			

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 1CONCEPT: IVTRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:11	
	2	00:25	00:42	
B. Reposition Foot Restraint	3			
	4			
	5	03:16	03:27	
	6			
C. Package Operations in Bay 1	7&8	03:48	04:15	
	9&10	04:32	04:49	
	11			
D. Reposition Foot Restraint	12	04:58	05:51	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	07:55	08:06	
	16	08:17	08:36	
	17	08:48	08:59	
	18	09:12	09:23	
	19	09:34	10:19	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	11:46	11:54	
	24	12:03	12:21	
	25	12:31	12:44	
	26	13:10	13:23	
	27	13:31	14:04	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	14:26	14:35	
	32	14:43	15:02	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	18:03	18:31	
	38	18:44	18:58	
	39	20:16	20:53	
	40	21:04	21:20	
	41			

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 1CONCEPT: IVTRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:14	
	2	00:23	00:39	
B. Reposition Foot Restraint	3			
	4			
	5	02:38	02:46	
	6			
C. Package Operations in Bay 1	7&8	03:03	03:22	
	9&10	03:40	04:00	
	11			
D. Reposition Foot Restraint	12	04:11	04:52	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	07:24	07:32	
	16	07:40	08:01	
	17	08:10	08:17	
	18	08:28	08:40	
	19	08:56	09:24	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	12:41	12:56	
	24	13:13	13:32	
	25	13:42	13:53	
	26	14:02	14:19	
	27	14:28	15:00	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	15:16	15:27	
	32	15:39	15:50	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	17:42	18:17	
	38	18:26	19:00	
	39	19:11	19:59	
	40	20:09	20:53	
	41			

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 1

CONCEPT: IV

TRIAL NO. 6

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:09	
	2	00:14	00:25	
B. Reposition Foot Restraint	3			
	4			
	5	01:41	01:47	
	6			
C. Package Operations in Bay 1	7&8	01:59	02:24	
	9&10	02:36	02:58	
	11			
D. Reposition Foot Restraint	12	03:06	03:45	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	05:03	05:11	
	16	05:19	05:39	
	17	05:47	05:56	
	18	06:14	06:20	
	19	06:24	06:49	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	08:20	08:28	
	24	08:36	08:51	
	25	09:02	09:16	
	26	09:29	09:40	
	27	09:49	10:27	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	10:38	10:44	
	32	10:55	11:22	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	12:43	13:04	
	38	13:18	13:41	
	39	13:52	14:27	
	40	14:34	15:06	
	41			

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 2CONCEPT: IVTRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:31	
	2	00:36	00:49	
B. Reposition Foot Restraint	3			
	4			
	5	03:13	03:24	
	6			
C. Package Operations in Bay 1	7&8	06:56	07:22	
	9&10	07:43	09:43	
	11			
D. Reposition Foot Restraint	12	09:48	11:12	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	13:43	13:54	
	16	14:02	14:52	
	17	15:09	15:20	
	18	15:37	15:54	
	19	16:02	17:00	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	18:48	18:59	
	24	19:09	19:26	
	25	19:38	19:48	
	26	20:01	20:41	
	27	20:52	21:22	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	22:08	22:27	
	32	22:43	23:05	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	32:15	32:53	
	38	33:14	33:54	
	39	34:09	34:56	
	40	35:20	35:59	
	41			

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 2CONCEPT: IVTRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:16	
	2	00:25	00:33	
B. Reposition Foot Restraint	3			
	4			
	5	04:02	04:14	
	6			
C. Package Operations in Bay 1	7&8	04:36	05:12	
	9&10	05:43	06:07	
	11			
D. Reposition Foot Restraint	12	06:18	06:55	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	09:14	09:22	
	16	09:31	09:49	
	17	09:58	10:09	
	18	11:46	12:29	
	19	12:38	12:51	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	14:10	14:14	
	24	17:53	18:14	
	25	18:25	18:36	
	26	18:52	19:01	
	27	19:09	19:44	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	20:42	20:51	
	32	21:00	21:14	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	23:46	24:15	
	38	24:29	25:32	
	39	25:43	26:21	
	40	26:36	27:22	
	41			

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 2CONCEPT: IVTRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:16	Reach measurements - 60" 45° left, 82" forward, 69" 45° right from SOFR
	2	02:54	03:11	
B. Reposition Foot Restraint	3			
	4			
	5	05:31	05:39	
	6			
C. Package Operations in Bay 1	7&8	05:52	06:16	
	9&10	06:52	07:15	
	11			
D. Reposition Foot Restraint	12	07:23	07:40	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	10:55	11:04	
	16	11:11	11:52	
	17	12:01	12:08	
	18	12:24	12:37	
	19	12:46	13:11	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	14:39	14:47	
	24	14:55	15:18	
	25	15:41	15:49	
	26	15:57	16:04	
	27	16:11	16:43	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	16:56	17:00	Reach measurements - 92" 45° left, 78" forward, 56" 45° right from MRFR at intersection with fireman's pole
	32	18:04	18:22	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	20:20	20:50	
	38	21:01	21:26	
	39	21:36	22:14	
	40	22:22	23:20	
	41			

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 2

CONCEPT: IV

TRIAL NO. 4

TASK	ELE- MENT	TIME		COMMENTS
		START	END	
A. STS Panel Operations	1	00:00	00:15	
	2	00:23	00:31	
B. Reposition Foot Restraint	3			
	4			
	5	03:22	03:31	
	6			
C. Package Operations in Bay 1	7&8	03:50	04:29	
	9&10	04:46	05:13	
	11			
D. Reposition Foot Restraint	12	05:25	06:49	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	08:24	08:34	
	16	08:43	09:12	
	17	09:22	09:32	
	18	09:48	09:58	
	19	10:08	10:41	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	12:29	12:37	
	24	12:48	13:08	
	25	13:18	13:30	
	26	13:41	13:54	
	27	14:06	14:40	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	14:54	14:59	
	32	15:07	15:25	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	23:19	23:52	
	38	24:04	24:43	
	39	24:57	25:47	
	40	25:55	26:37	
	41			

TIME DATA SHEET

MODE: Shirtsleeve

SUBJECT NO. 2CONCEPT: IVTRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:17	
	2	00:28	00:34	
B. Reposition Foot Restraint	3			
	4			
	5	03:55	04:01	
	6			
C. Package Operations in Bay 1	7&8	04:14	04:32	
	9&10	04:46	05:08	
	11			
D. Reposition Foot Restraint	12	05:17	05:53	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	07:06	07:14	
	16	07:57	08:30	
	17	08:40	08:49	
	18	08:59	09:11	
	19	09:24	09:55	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	11:29	11:37	
	24	11:44	12:02	
	25	12:11	12:20	
	26	12:29	12:40	
	27	12:47	13:40	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	13:55	14:00	
	32	14:05	14:20	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	17:06	17:59	
	38	18:10	18:39	
	39	18:50	19:32	
	40	20:00	20:46	
	41			

TIME DATA SHEET* MODE: Shirtsleeve SUBJECT NO. 2CONCEPT: IV TRIAL NO. 6

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:10	
	2	00:15	00:31	
B. Reposition Foot Restraint	3			
	4			
	5	01:42	01:46	
	6			
C. Package Operations in Bay 1	7&8	02:00	02:16	
	9&10	02:38	02:54	
	11			
D. Reposition Foot Restraint	12	03:03	03:21	
	13			
	14			
E. Package Operations in Bay 1A Level C	15	04:31	04:37	
	16	04:46	05:05	
	17	05:12	05:18	
	18	05:27	05:32	
	19	05:42	06:01	
F. Reposition Foot Restraint	20			
	21			
	22			
G. Package Operations in Bay 3 Level D	23	07:26	07:31	
	24	07:37	07:53	
	25	08:02	08:11	
	26	08:19	08:24	
	27	08:31	09:01	
H. Reposition Foot Restraint	28			
	29			
	30			
I. SAL Operations	31	09:24	09:27	
	32	09:38	09:54	
	33			
J. Reposition Foot Restraint	34			
	35			
K. T-003 Package Operations	36&37	11:32	11:51	
	38	11:59	12:18	
	39	12:28	12:50	
	40	12:58	13:43	
	41			

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: IV

TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:14	
	2	00:22	00:33	
	3			
	4&5			
B. Reposition Foot Restraint	6	02:57	03:31	For 6 & 7
	7			
	8	03:44	03:57	For 8 & 9
C. M-487 Package Operations	9&10	04:05	05:39	
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	06:28	07:42	
	19	07:54	08:26	
	20	08:39	09:21	
	21	09:28	10:17	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: IV

TRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:14	
	2	00:23	00:34	
	3			
	4&5			
B. Reposition Foot Restraint	6	03:21	03:41	For 6 & 7
	7			
	8	04:23	04:38	For 8 & 9
C. M-487 Package Operations	9&10	05:03	05:35	
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	06:01	06:44	
	19	07:01	07:36	
	20	07:48	08:25	
	21	08:37	09:13	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: IV

TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:17	
	2	00:27	00:39	
	3			
	4&5			
B. Reposition Foot Restraint	6	02:37	02:58	For 6 & 7
	7			
	8	03:12	03:35	For 8 & 9
C. M-487 Package Operations	9&10	03:44	04:16	
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	04:46	05:31	
	19	06:11	06:50	
	20	08:04	09:18	
	21	09:33	10:20	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1CONCEPT: IVTRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:18	
	2	00:29	00:39	
	3			
	4&5			
B. Reposition Foot Restraint	6	04:12	04:32	For 6 & 7
	7			
	8	04:44	04:58	For 8 & 9
C. M-487 Package Operations	9&10	05:10	05:34	
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	05:50	06:33	
	19	06:44	07:17	
	20	07:30	08:03	
	21	08:12	08:54	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1

CONCEPT: IV

TRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:41	
	2	01:27	01:47	
	3			
	4&5			
B. Reposition Foot Restraint	6	04:30	04:47	For 6 & 7
	7			
	8	04:58	05:15	For 8 & 9
C. M-487 Package Operations	9&10			Time Not Obtained
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	06:31	07:10	
	19	07:20	08:06	
	20	08:15	08:47	
	21	08:59	09:41	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 1CONCEPT: IVTRIAL NO. 6

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:14	Reach measurements - 81"
	2	00:21	00:29	45° left, 82" forward, 85"
	3			45° right from SOFR
	4&5			
B. Reposition Foot Restraint	6	01:43	02:04	For 6 & 7
	7			
	8	02:13	02:29	For 8 & 9
C. M-487 Package Operations	9&10	02:36	02:57	
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	03:12	03:43	
	19	03:52	04:18	
	20	04:27	05:02	
	21	05:09	06:17	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: IV

TRIAL NO. 1

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:23	
	2	00:29	00:56	
	3			
	4&5			
B. Reposition Foot Restraint	6	03:19	03:43	For 6 & 7
	7			
	8	04:59	05:18	For 8 & 9
C. M-487 Package Operations	9&10	05:47	06:20	
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	06:55	07:35	
	19	07:46	09:20	
	20	08:29	09:21	
	21	09:29	10:26	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2CONCEPT: IVTRIAL NO. 2

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:20	
	2	00:29	00:41	
	3			
	4&5			
B. Reposition Foot Restraint	6	03:01	03:20	For 6 & 7
	7			
	8	03:37	04:07	For 8 & 9
C. M-487 Package Operations	9&10	04:16	04:37	
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	04:59	05:30	
	19	05:45	06:18	
	20	06:32	07:12	
	21	07:23	08:35	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: IV

TRIAL NO. 3

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:23	
	2	00:30	00:55	
	3			
	4&5			
B. Reposition Foot Restraint	6	03:33	03:58	For 6 & 7
	7	04:08	04:32	
	8			
C. M-487 Package Operations	9&10			
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	05:41	06:22	
	19	06:34	06:59	
	20	07:08	07:53	
	21	08:02	09:00	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: IV

TRIAL NO. 4

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:25	
	2	00:43	01:01	
	3			
	4&5			
B. Reposition Foot Restraint	6	03:17	03:35	For 6 & 7
	7	04:28	04:42	For 8 & 9
	8			
C. M-487 Package Operations	9&10			
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	05:04	05:44	
	19	05:54	06:18	
	20	06:28	07:09	
	21	07:20	08:29	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: IV

TRIAL NO. 5

<u>TASK</u>	<u>ELE- MENT</u>	<u>TIME</u>		<u>COMMENTS</u>
		<u>START</u>	<u>END</u>	
A. STS Panel Operations	1	00:00	00:30	
	2	01:08	01:31	
	3			
	4&5			
B. Reposition Foot Restraint	6	03:12	03:29	For 6 & 7
	7			
	8	03:41	04:04	For 8 & 9
C. M-487 Package Operations	9&10	04:11	04:49	
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	05:19	05:54	
	19	06:39	07:06	
	20	07:17	07:52	
	21	08:01	08:46	

TIME DATA SHEET

MODE: Vented Suit

SUBJECT NO. 2

CONCEPT: IV

TRIAL NO. 6

TASK	ELE- MENT	TIME		COMMENTS
		START	END	
A. STS Panel Operations	1	00:00	00:23	Reach measurements - 79"
	2	00:31	00:51	45° left, 77" forward, 82"
	3			45° right from SOFR
	4&5			
B. Reposition Foot. Restraint	6	02:39	03:08	For 6 & 7
	7			
	8	03:19	03:32	For 8 & 9
C. M-487 Package Operations	9&10	04:35	04:58	
	11&12			
D. Reposition Foot Restraint	13			
	14			
E. Reposition Foot Restraint	15			
	16			
F. T-003 Package Operations	17&18	05:14	05:48	
	19	05:57	06:20	
	20	06:29	07:11	
	21	07:19	08:36	

APPROVAL

SIMULATION TEST REPORT FOR INTERNAL MOBILITY AIDS EVALUATION

BY

SPACE SIMULATION AND EXPERIMENTS OFFICE
SIMULATION ENGINEERING SECTION

The information in this report has been reviewed for security classification. Review of any information concerning Department of Defense or Atomic Energy Commission programs has been made by the MSFC Security Classification Officer. This report, in its entirety, has been determined to be unclassified.

This document has also been reviewed and approved for technical accuracy.

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